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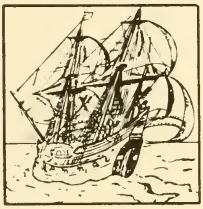

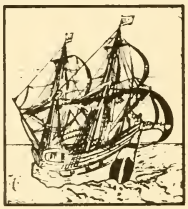

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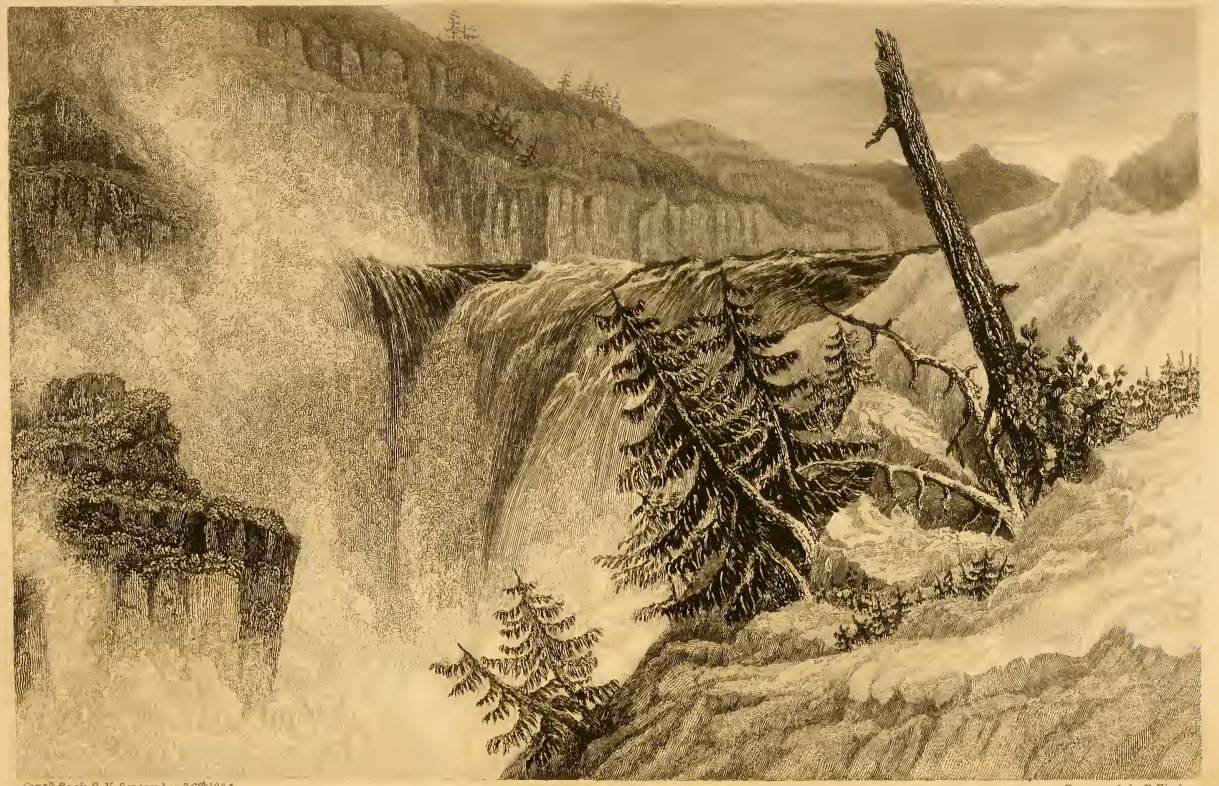

Capt.n Back R.N. September 25th 1834.

Engraved by E.Finden.

Anderssons Fall

NARRATIVE

OF THE

ARCTIC LAND EXPEDITION

TO THE MOUTH OF

THE GREAT FISH RIVER,

AND

ALONG THE SHORES OF THE ARCTIC OCEAN,

IN THE YEARS 1833, 1834, AND 1835;

BY

CAPTAIN BACK, R.N.

COMMANDER OF THE EXPEDITION.

ILLUSTRATED BY A MAP AND PLATES.

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
MDCCCXXXVI.

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TO

THE RIGHT HONOURABLE

THE EARL OF RIPON.

My Lord,

Your Lordship was Secretary of State for the Colonies when the Expedition of which the following is the Narrative was organised: and to your good Offices, and liberal Subscription in its favour, the success of the project was at that time mainly due. I have ventured, in consequence, to dedicate to you the Volume: and am most happy in being thus enabled to express some part of the sincere respect with which I have the honour to be,

My Lord,

Your Lordship's most obedient
and very humble Servant,

George Back.

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NARRATIVE

OF A

JOURNEY

TO THE

SHORES OF THE ARCTIC SEA.

PRELIMINARY CHAPTER.

EARLY in the year 1832 the protracted absence of Captain (now Sir John) Ross, who had sailed in 1829 to the Polar regions, and had not afterwards been heard of, became the subject of general and anxious conversation. A report even reached Italy, where I happened to be, that he and his adventurous companions had perished; but, having ascertained that there was no other ground for this rumour than the uncertainty of their fate, I shortly afterwards hastened to England, with the intention of offering to Government my services to conduct an expedition in search of them.

On my arrival, in June 1832, I was informed

that my friend and former companion, Doctor Richardson, had already made an application to the same effect; but that his offer, for various reasons, not having been accepted, he had, in consequence, as I was given to understand, relinquished the idea. I was further informed, however, by Mr. Beverly, who had been the companion of Sir E. Parry in his perilous journey over the ice from Spitzbergen towards the Pole, that Mr. Ross (brother of Sir John, and father of Captain James Ross) was anxious to find an officer properly qualified to undertake the conduct of a party through America, on the plan proposed by Doctor Richardson; which, not having been adopted by the Government, had been presented for consideration to other quarters.

I proceeded, therefore, without loss of time to Mr. Ross, who read to me a petition which he was about to send to the King, praying his Majesty's gracious sanction to the immediate despatch of an expedition for rescuing, or at least ascertaining the fate of, his son and brother; and my name being forthwith inserted as the proposed leader of the expedition, this petition was forwarded through Lord Goderich, then Secretary for the Colonies. The interval before an answer could be returned was employed in collecting

information, and organising the necessary co-operation. In this I was warmly seconded and efficiently aided by many gentlemen whose opinions and assistance were most valuable, and more especially by Nicholas Garry, Esq., the Deputy Governor of the Hudson's Bay Company, Captains Beaufort and Maconochie, Doctor Richardson, and George Baillie, Esq. I addressed, moreover, on the 21st of August, a letter to the Geographical Society, explaining my views, and requesting that they might be recommended to the favourable consideration of Mr. Hay, Under Secretary for the Colonies, and a member of that Society.

It is gratifying to add, that the support of Mr. Hay was zealously afforded; and, shortly afterwards, the following letter was sent to Mr. Ross: —

"Downing Street,
30th August, 1832.

"Sir,

"I am directed by Viscount Goderich to acquaint you, that, his Majesty having been pleased to refer your petition to his Lordship's consideration, Lord Goderich has felt himself justified in recommending to the Lords Commissioners of the Treasury to grant the sum of 2000*l.* in aid of the expenses of the expedition, provided

that it is commanded by Captain Back; it being understood that the Hudson's Bay Company will furnish the supplies and canoes free of charge, and that the remainder of the expense, which is estimated at 3000*l.*, will be contributed by Captain Ross's friends. On receiving an answer from the Treasury, the result will be duly communicated to you.

"I am, Sir,

"Your most obedient servant,

"*Geo. Ross, Esq.*" "HOWICK.

This was announced to me as follows: —

"No. 267. Strand,
7th Sept. 1832.

"SIR,

"I have the pleasure to inclose you the copy of a letter which I have received from Lord Howick, by the directions of Lord Goderich, in reply to my application to his Majesty, on the subject of an expedition to the shores of the Polar Sea, with the view to ascertain, if possible, the fate of my brother, Captain Ross, and of my son, Captain James Clarke Ross.

"I have only to add my earnest request, that you will, in compliance with what appears also to be the wish of Government, undertake the command and direction of this humane and difficult enterprise, — certainly a most *arduous* task,

but one, for the effectual accomplishment of which none is more eminently qualified.

" I have the honour to be, Sir,

" Your very obedient servant,

" *Capt. Geo. Back.*" " Geo. Ross.

My answer was, of course, a ready acceptance of the proposed trust. The interest and sympathy of the public began now to manifest themselves more strongly. On November 1. 1832, a meeting was accordingly held at the rooms of the Horticultural Society (kindly lent for the occasion), in order to bring the humane object of the expedition formally before it; and in Vice Admiral the Right Hon. Sir George Cockburn, who presided, the cause found so powerful an advocate, that a subscription of 800*l.* was made on the spot. A standing Committee was also now formed for the management of the expedition, consisting of the following persons: —

Sir G. Cockburn, G. C. B., Chairman.
John Barrow, Esq., F. R. S.
Robt. Hay, Esq. F. R. S.
Vice Admiral Sir W. Hotham, K. C. B.
Vice Admiral Sir Charles Ogle, Bart.
Rear Admiral W. H. Gage.
Felix Booth, Esq.
The Hon. Capt. H. Duncan, R. N.

Capt. Bowles, R. N.
Capt. Beaufort, R. N. F. R. S.
J. H. Pelly, Esq. Governor H. B. Company.
Nich. Garry, Esq. Dep. Gov. do.
W. P. Craufurd, Esq.
Capt. Beechey, R. N. F. R. S.
Dr. Richardson, F. R. S.
Capt. Hoppner, R. N.
Capt. Maconochie, R. N.
C. Beverly, Esq. F. R. S.
Robert M'Culloch, Esq.
J. Spence, Esq.
George Ross, Esq., Honorary Secretary.

Of these, Mr. Booth, Captain Duncan, and Captain Bowles were appointed Trustees. The services and influence of Sir George Cockburn, which had been so beneficially employed in aid of the expedition, were soon lost to the Committee, in consequence of his appointment to the command on the West India station. But his place was condescendingly supplied by his Royal Highness, the Duke of Sussex, who was pleased to become Vice Patron and Chairman. Mr. George Ross also having resigned his situation as honorary secretary, and turned his attention to the object of getting up an expedition by sea for the same benevolent purpose, his place was taken by Robert M'Culloch,

Esq., a cousin of Captain Ross, and thus not less interested in the success of the scheme than Mr. Ross himself.

It was gratifying to observe, in the rapid accumulation of our funds, the liveliness of the public sympathy in this disinterested project. No obstacle, therefore, was to be anticipated from want of means, and the preparations went on with increased confidence. In furtherance of the communications which were made by Dr. Richardson, the Governor and Directors of the Hudson's Bay Company had already despatched directions to their agents in America, apprising them that such an expedition might be expected in the following spring, and directing the necessary preparations to be made for it; and now, besides generously placing at our disposal 120 bags of pemmican, two boats and two canoes, these gentlemen suggested, with equal liberality and considerateness, the expediency of taking it under the especial protection of the Company, by issuing a commission under their seal to me as its Commander. Gladly, as may be supposed, did I avail myself of so important an offer, well knowing, from past experience, that the co-operation of all parties throughout their extensive territory would by this means be effectually secured.

The expedition was to consist of two officers and eighteen men; part of whom, including two

good boat carpenters, were to be engaged in this country,—and part in Canada,—men who should be inured to fatigue, and well accustomed to the duties they would have to perform. From Montreal it was proposed that the ordinary route of the fur traders should be followed by the Ottawa, French River, the Great Lakes, Lake Winnipeg, &c. to Great Slave Lake; from whence Indians were to be employed as guides and hunters to accompany the party to the banks of the Thlew-ee-choh-desseth, or Great Fish River, which, according to the testimony of the Indians, lay to the eastward of the Lake, and might be approached by an intervening chain of smaller lakes and portages. The winter residence, for which, from a reference to Hearne's Journey, it seemed so well adapted, was to be there established; and in the mean while a detachment of eight men, well armed, was to proceed in advance with me, without loss of time, to explore the river in a light canoe. As it necessarily flowed through the barren lands which are of nearly equal elevation with the country north of Fort Enterprise, it was to be expected that its course, like the descent of the Coppermine river, would be interrupted by rapids or cascades; and these the canoe excursion would enable me to survey, so that, on my return to the winter establishment, we might construct boats combining the qualities requisite for both the river

and sea navigation. As far, also, as the season would permit, my visit to the sea might give me an opportunity of communicating with the Esquimaux, and obtaining, if not intelligence of Captain Ross, at least much information for the direction of my course the following summer. Having passed the first winter, it was proposed that we should start for the sea the moment the ice broke up; and, if an opinion should prove correct, which I had been led to entertain from an inspection of the maps traced by the Indians, that the mouth of the river lay between the 68th and 69th parallels of latitude, and the 90th and 100th meridians of longitude, we should then be less than three hundred miles from the wreck of the Fury in Regent Inlet. It had formed part of Captain Ross's plan to visit the wreck of the Fury in the first instance, that he might supply himself with coals and such provisions and stores as were available; and to return and winter beside it, if in the course of the summer he should be unable to penetrate to the westward. It was therefore in Regent Inlet that the search for him was most likely to be successful. If, contrary to our hope, no traces of Captain Ross should be discovered on arriving at the wreck of the Fury, and the season should be far advanced, it would be necessary for us to retrace our way to winter quarters; and, in so doing, we should embrace every opportunity of erecting

land-marks and signal posts, to arrest the attention of the wanderers to the notes deposited beneath, detailing the position of our abode, and the means adopted for their relief.

On the disruption of the ice in the following spring, the expedition would again be on the shores of the Polar Sea, and its researches would be resumed in a different direction from that previously taken. Every Esquimaux hut would then be minutely inspected, in the hope of finding some token of the fate of our countrymen; and the gratification which the promoters of the expedition would experience, should even a single British seaman be rescued from his melancholy fate by their means, every one felt would amply repay our utmost exertions. While, even if no such happy fortune should attend our researches, the geographical knowledge that must be obtained, and the scientific information resulting from a course leading nearly over one of the Magnetic Poles, would, it was hoped, tend to console them.

Such was the outline of the plan to be followed, as regarded the humane and principal object of our search; and in the event of that being rendered nugatory by the almost unlooked for return of Captain Ross and his gallant companions, or by any obstacle preventing the progress of the expedition in the

exact direction of its course to the wreck of the Fury, it was still thought, in our uncertainty of the precise place where the Thlew-ee-choh-desseth might fall into the sea, that the coast line between Point Turnagain and the known land to the eastward might be satisfactorily ascertained, and thus another step made towards the determination of that interesting problem — the northern limits of America.

For all these purposes, I was provided with a variety of astronomical instruments, including a dipping needle by Dollond, and a diurnal variation instrument by Jones; which latter was also to be used to obtain the effect produced on the needle by the aurora borealis. I had also one of Professor Hansteen's instruments, besides three chronometers lent by the Admiralty. Guns and other necessary materials were furnished by the Committee; who, that nothing might be omitted which could at all contribute to our comfort, ordered also a plentiful provision of cocoa and macaroni, than which few things are better suited to such undertakings, and of which such was our economical expenditure, that some portion even returned with us to Montreal.

His most gracious Majesty, the patron of the expedition, having commanded my attendance at Brighton, I had the honour to explain the

plans and prospects of the service, with the means adopted to guard against privation, and to secure the party from those disasters to which they might otherwise be subject; and I had the high gratification of receiving the royal approbation of these plans, and a gracious expression of sincere desire for the safety of my party.

Their Royal Highnesses the Duchess of Kent and Princess Victoria also received a deputation, consisting of Vice Admiral Sir George Cockburn, Captains Beechey and Maconochie, with myself, for the purpose of pointing out on the chart the line of the proposed route, submitting, at the same time, a sketch of the intended proceedings; — on which occasion their Royal Highnesses evinced a truly benevolent interest in the expedition.* Nor was the Duke of Sussex less solicitous to forward the undertaking, as I had the honour to receive a letter from his Royal

* Besides being liberal subscribers to the expedition, their Royal Highnesses sent me, some days afterwards, a pocket compass and a case of mathematical instruments, as a contribution to its scientific equipment; and I shall not attempt to describe the enthusiasm which these tokens of the interest taken by them in our benevolent mission afterwards created, not only in British North America, but also in the United States. It will be seen in a future part of my Narrative, that this compass, from its extreme delicacy, became afterwards of essential service.

Highness, recommending me to the attentions of Doctor Hossack, a scientific gentleman at New York.

Finally, it was deemed expedient, on many accounts, but more especially to give me additional authority over the men whom I might engage for the service, that my mission should be taken under the direction of his Majesty's Government; and accordingly I received from the Secretary of State for the Colonies the following instructions: —

"Colonial Office, Downing Street,
4th February, 1833.

"Sir,

"The Lords Commissioners of the Admiralty having been pleased to lend your services to this office, that you may conduct an expedition now preparing to proceed to the Polar Sea in search of Captain Ross, you are hereby required and directed to undertake this service, placing yourself for the purpose at the disposition of the Governor and Committee of the Hudson's Bay Company, who have undertaken to furnish you with the requisite resources and supplies.

"You are to leave Liverpool early in the present month, and proceed with your party by way of New York to Montreal, and thence along the usual route pursued by the north-west

traders to Great Slave Lake, which it is hoped you will reach by the 20th of July. You are then to strike off to the north-eastward, or in such other direction as you may ascertain to be most expedient, in order to gain the Thlew-ee-choh-desseth, or Great Fish River, which is believed either to issue from Slave Lake, or to rise in its vicinity, and thence to flow with a navigable course to the northward, till it reaches the sea. On arriving on the banks of this river, you are to select a convenient situation for a winter residence, and immediately appoint a portion of your force to erect a house thereon; but, if possible, you are to proceed yourself, with an adequate party, and explore the river to the coast the same season, erecting a conspicuous land-mark at its mouth, and leaving notice of your intention to return the ensuing spring, in case Captain Ross should be making progress along this part of the shore.

"You are to take care, however, to return before the commencement of the winter, to avoid any undue exposure of your men. During the winter you are to construct two boats, capable, in your opinion, of navigating the Polar Sea; and as early as possible in the ensuing spring you are to descend again to its shores.

"Your proceedings afterwards must be much

guided by your own judgment. The first object will be to reach Cape Garry, where his Majesty's late ship Fury was wrecked; on the remaining stores of which it is known that Captain Ross in some measure relied: but in making for this, whether by the east or west, you must be governed by the position of the mouth of the river, and other local circumstances, as you progressively ascertain them.

"While passing along the coast, you are to keep a vigilant look-out upon the shore for any signal or indication of the party of which you are in search (particularly at the entrance of the Hecla and Fury Strait, should you take the eastern passage); and in the event of your meeting them, previous to your arrival at Cape Garry, you are to offer to return immediately, and bring them with you to the Hudson's Bay settlements. Or should you find any indication of their having been on any part of the coast before your arrival, you are to search minutely for some memorial which may lead to the discovery of their intentions; and to proceed, in the event of success, in whatever practicable direction may seem best calculated to lead you to them.

"Devoting the summer, then, to the interesting search in contemplation, it is unnecessary to recommend to you to make it as effectual as

possible, consistently with a due regard for the health and preservation of your party. But, whatever may be its prospects or success, you are on no account to prolong it beyond such a period of the year (varying from the 12th to the 20th of August, according to the distance which you may have attained) as will insure your return to your winter quarters before the severe weather sets in. On your acting in this particular with due caution may depend the eventual success of the whole expedition. On your return to your temporary establishment, you are carefully to examine the state of your supplies; if possible, also, communicating with Great Slave Lake, to ascertain whether additional stores are there collected for you. And if you find that you can, with reasonable prudence, devote a second summer to the service on which you are engaged, you are hereby required and directed to do so; but if not, you are to return to England in the following spring.

"Subordinate to your object of finding Captain Ross, or any survivors or survivor of his party, you are to direct your attention to mapping what yet remains unknown of the coasts which you will visit, and making such other scientific observations as your leisure will admit; for which purposes the requisite instruments will be supplied to you. But you are not for such objects to deviate

from your principal pursuit, until you shall have either succeeded in its accomplishment, or satisfactorily ascertained that its success is impossible.

"You are, during your absence, to embrace any opportunities that may offer of corresponding with this Office, and report your arrival here on your return.

"I have the honour to be, Sir,

"Your obedient servant,

"GODERICH."

"*Captain George Back, R. N.*
21. *Regent Street.*"

Strengthened by this authority, as well as by the commission from the Hudson's Bay Company, which ordered every assistance to be rendered me by the different officers in their territories, there now wanted only an efficient medical man to take care of the health of the party. This was found in Mr. Richard King, who, having in the first instance volunteered his services, was subsequently engaged, at a salary, as surgeon and naturalist to the expedition. Three men only (two of whom were carpenters and shipwrights) were taken from England: the remainder, as will hereafter be seen, were selected either from Montreal or from the Company's posts in the interior.

To present at one view the objects, purpose,

and direction of the service, the execution of which is narrated in the following pages, it will be proper to mention here, that exactly one year after our departure from Canada, by a despatch which had been forwarded with the most praiseworthy diligence by the Hudson's Bay Company *, I received the happy intelligence of Captain Ross's providential return, communicated in the following letter from Sir Charles Ogle, Baronet: —

"*Arctic Land Expedition.*

"21. Regent Street,
22d Oct. 1833.

"SIR,

"I have much pleasure in acquainting you, on the part of the Committee for managing your expedition, that Captain Ross and the survivors of his party returned to England a few days ago, in a whaler, which picked them up in Barrow Straits; and that thus one object of your expedition is happily attained.

"In concert, therefore, with his Majesty's Government (though the signature of the Secretary of State for the Colonies cannot be

* The extraordinary expedition with which this despatch was transmitted is worthy of being recorded; and I have, therefore, in the Appendix, given a few particulars which will be interesting to the reader.

immediately procured, in consequence of his absence from town), you are hereby directed to turn your whole attention to your second object, viz. completing the coast line of the north-eastern extremity of America. You will observe, from the enclosed abstract of Captain Ross's proceedings, that this, also, is become an object of comparatively easy acquisition. By proceeding first to Point Turnagain, and thence eastward to an obelisk in about 69° 37′ N. and 98° 40′ W., which marks the termination of Captain Ross's progress, — or, *vice versâ*, by proceeding first to this obelisk, and thence westward, — it is believed that you may accomplish all that is now wanting in one season. But even should this prove impossible, and you find that a second season on the coast is desirable, I believe that I may confidently assure you that the means will be obtained for that purpose.

" Your choice of routes will of course depend on the point where the Thlew-ee-choh joins the sea; on which head, therefore, the Committee has few or no observations to offer. If, as Governor Simpson imagines, it falls into Bathurst's Inlet, and is identical with Back's River there, you will of course proceed thence to the eastward; or if any branch of it, or any other river you may meet with, turn decidedly to the westward or eastward, the Committee would

rather recommend your endeavouring in this case to start from one or other extremity. But beyond this it can offer no hints.

" I cannot conclude, however, without earnestly recommending to you, in its name and that of all the subscribers to and promoters of your expedition, to be careful not to expose yourself and men to unnecessary hazard. The satisfaction which we all experience in receiving Captain Ross again is very great; but it will be much impaired by any casualties in your expedition.

" I have the honour to be, Sir,

" Your obedient humble servant,

" Charles Ogle, Chairman.

" P. S. — As we are not yet quite certain of obtaining funds for a third year (although reasonably confident that his Majesty's Government will, if necessary, supply them), you will be entirely guided, with regard to it, by further instructions which will be forwarded to you in the course of next season, and which you will receive on your return to your winter quarters.

" C. O."

The instructions alluded to were never sent, and, had they been so, would have been unavailable. For, first, the difficulties already encountered had by that time proved, that any further

attempt by the Thlew-ee-choh would be as rash as its result would be fruitless; secondly, the hope of crossing the country direct to Bathurst's Inlet, or in any other direction leading towards Point Turnagain, had long been relinquished, in consequence of the unanimous testimony of the Indians, as to the insurmountable obstacles that would oppose the transport of canoes, and even the requisite provision for so long and arduous a journey. The whole of the streams west of the Thlew-ee-choh, within the knowledge of the Indians, are its tributaries, and are too shallow and rapid, and too much interrupted with rocks and other dangerous obstructions, to be navigable in any thing larger than a small canoe. There remained, therefore, but one way of penetrating to the sea, viz. by traversing the intervening mountains; and this, with such boats or canoes as would carry even the very limited number of men that composed my party, was totally impracticable. Had I not been fully convinced of this, I should, in the hope of accomplishing one of the great objects of my mission, have undoubtedly ventured to remain out another season, even though such an act had not received the sanction of the Committee.

The other points of my instructions were followed up to the best of my ability, as, it is

humbly hoped, will be demonstrated in the narrative which follows.

I cannot, however, close this preliminary statement, without conveying the public expression of my thanks to Mr. Richard King, for his uniform attention to the health of the party, and the readiness with which he assisted me in all cases where his services were required. To him the merit is due of whatever collections have been made in natural history, as well as of the preparation of a table of the temperatures of animals, &c. &c.

To the invaluable services of Mr. R. M'Leod, the narrative itself bears ample testimony; yet I must be permitted to indulge my own feelings, by offering to him here the tribute of my gratitude and esteem, for the zeal, courage, constancy, and ability which he displayed in emergencies and trials of no ordinary kind.

The men, also, and particularly those who accompanied me to the sea, were admirably qualified for the service they undertook, and are entitled to my warmest commendations for their general conduct. Nor can I withhold especial notice of the three artillery-men who accompanied me from Montreal; their behaviour furnishing an instructive and useful example to the others, and fully according with the high and generous feeling which induced them first to engage in the expedition.

Numerous, indeed, are the obligations which I am under to a multitude of excellent persons, both in England and America, who either gave or offered assistance at different stages of the enterprise. A particular and circumstantial acknowledgment of all these is impossible; but my English friends, I am sure, will forgive me for making one exception. After the fire at Montreal, by which our hotel was consumed, a rumour having got abroad that all the instruments, &c. belonging to the expedition were destroyed, I received, not long afterwards, the following communication: —

"Albany, April 29. 1833.

"My dear Sir,

"We have just heard of the destruction of the British American Hotel, and it is reported you have suffered loss. Under these circumstances, permit *one* of your *American friends* to offer to do any thing for you in his power, by way of REPLACING any articles at his own expense.

"Any thing I can do for you it will give me pleasure to do, on hearing from you.

"With sincere regard,

"Yours very truly,

"(In haste,)

"S. De Witt Bloodgood.

"*Capt. Back.*"

Any comment on a letter so honourable to the liberal and public-spirited writer would be superfluous. Such a generous act will be duly estimated by every English reader.

To my friend Dr. Richardson I owe a large debt of gratitude for many most useful suggestions, and for his friendly aid in general. The public also is his debtor, not only for the valuable matter contained in the fourth Chapter, but also for the exposition of the Natural History which is found in the Appendix.

Nor are my obligations less to Professor Christie, of Woolwich, for his valuable assistance in selecting some of the instruments, and for his examination and analysis of the results of the observations made with them. I am also indebted to Professor Hooker, J. G. Children, Esq., and Dr. Fitton, for their kind assistance in different departments of science.

Of the great and unappreciable service afforded by the Governor, Deputy Governor, and Directors of the Hudson's Bay Company, I have already spoken; but I should be indeed ungrateful, if I were not to add that their benevolent intentions were zealously fulfilled, and their judicious arrangements carried into complete effect by Mr. Simpson, the resident Governor, and the various officers in the service of the Company. Those who reflect how much, if not how en-

tirely, the success of an expedition like that which I had the honour to command must necessarily have depended on the aid and co-operation of these gentlemen, will feel how incumbent it is on me to acknowledge, as I now do, with sincere and fervent gratitude, the prompt attention, the ready assistance, and the provident care for our wants, manifested by all and each of them in their respective departments. Thus, for the complete and effective arrangements at Montreal I am indebted to Mr. James Keith, the agent of the Company at La Chine. At Norway House, chief factors Christie, Cameron, Rowand, and Lewis rendered me important service in the procuring of a crew, and suggested whatever useful information their experience and knowledge of the country enabled them to supply. By Mr. Christie, indeed, the whole of the winter stock was forwarded to the establishment at Fort Reliance. Neither can I pass over in silence the efficient and valuable services of chief factors Charles, Smith, Stuart, and M'Kenzie, Sen.; of Mr. D. Ross at the depôt of Norway House; Messrs. D. M'Intosh, Miles, Hargraves, and M'Murray, chief traders; and of Messrs. Hutchinson, Brislois, and Clouston, clerks. The frank and hospitable kindness which was shown by all to myself personally will never be forgotten by me, and is entitled to this public acknowledgment.

The courtesy of His Excellency Lord Aylmer, and the gratifying attentions of the worthy citizens of Montreal and New York, are of course to be attributed rather to their benevolent sympathy with the main purpose of the expedition, than to any regard for the individual who had been selected to conduct it. So regarded, their conduct is more honourable to them, and is at the same time not the less valued and held in remembrance by me. To express *my* thanks might savour of presumption; but I take the liberty of recording my feelings, in order that the tribute may be rendered by the British Public.

CHAPTER I.

Departure from England. — Arrival at Montreal. — Preparations for the Expedition. — Fire at the Hotel. — Departure from La Chine. — The St. Lawrence. — The Ottawa. — Lake Huron. — The Sault de Ste. Marie. — Arrival at Fort William. — Distribution of the Loadings. — The Mountain Fall. — Lac de la Pluie. — Arrival at Fort Alexander. — Magnetic Observations. — Arrival of Governor Simpson, and Arrangements made by him. — Arrival at Norway House. — Difficulty of procuring Men for the Service. — Departure from Norway House.

On Sunday, the 17th of February, 1833, accompanied by Mr. Richard King and three men, two of whom had gained experience under Sir J. Franklin, I embarked in the packet ship Hibernia, Captain Maxwell, from Liverpool; and, after a somewhat boisterous passage of thirty-five days, during part of which the ship was entangled amongst ice on St. George's Bank, arrived at New York. We were received with every attention that politeness and hospitality could dictate. The usual forms at the Custom-house were dispensed with in our favour; and all classes seemed anxious to facilitate an undertaking, in the success of which the warmest

interest was manifested. The proprietors of the Ohio, steam-boat, offered that fine vessel for our conveyance to Albany; and, as we started from the wharf, upwards of a thousand well-dressed persons, with our friend Mr. Buchanan, the British consul, at their head, gave us three hearty cheers.

From Albany we travelled in coaches or waggons, according to the quality of the roads; and reached Montreal on the 9th of April, a day earlier than I had promised six months before. Mr. Keith, the principal officer of the Hudson's Bay Company at La Chine, lost no time in acquainting me that preparations for the expedition were in a forward state, and would be ready by the appointed time. He entertained, however, some doubt whether he could himself obtain the required number of able *voyageurs;* and thought that they might be selected, with greater advantage to the service, from among the old "winterers" resorting to a depôt of the Company in the interior, which I should necessarily have to pass. He also informed me that despatches, sent from England, had been forwarded to the resident governor, Mr. Simpson; who, being thus apprised of our movements, would be enabled to co-operate accordingly.

No sooner was it known in Montreal that our little party was in one of the hotels,

than the commandant, Lieutenant-Colonel Macdougall, of the 79th regiment, and the officers of the garrison, as well as the principal inhabitants of the town, waited upon us, and vied with each other in administering to our comforts, and rendering as agreeable as possible the short time which remained to us for the enjoyment of civilised society.

I availed myself of this interval to ascertain the rates of the chronometers with the nicest precision, and to make a set of observations for the dip and magnetic intensity, with Dollond's and Hansteen's needles; which operations, with the numerous arrangements necessary for completing our outfit, fully occupied Mr. King and myself until our departure.

Neither was I without a foretaste of the anxiety inseparable from the service on which I had embarked. A refractory spirit had of late been manifested by two of my three men, who even threatened to proceed no farther; for no better reason than a sudden and wayward apprehension of a journey, which the strong expression of public sympathy had taught them to regard as beset with more than ordinary perils. However, by convincing them of the disgrace which would attend a desertion, and then despatching them at once, through the means of Mr. Keith, to a distant post of the

Company, I was enabled to retain their services, which I was not without hope would, in the sequel, turn to good account. Still this incident taught me the little dependence that could be placed on men who shrank from dangers in prospect, and were ready to abandon an expedition in which, but two months before, they had engaged with the utmost alacrity and zeal: and as Captain Anderson, of the 6th battalion of Royal Artillery, had intimated the eager desire of several of his best men to accompany me, I wrote to Lord Aylmer, the Governor-general, and His Excellency was pleased to sanction the discharge of four for that purpose. Colonel Godby was equally kind in affording me assistance; and, strengthened by those volunteers, I felt that I had now a check on any that might hereafter prove refractory, as well as the comfortable assurance of having those with me on whom I could rely in the utmost need.

On the evening of the 24th of April a fire broke out in our hotel, just as we were about to quit it. The performance of the Bohemian brothers had brought together a numerous assemblage, principally of ladies; and such was the fury of the flames, that for many the upper windows afforded the only means of escape. Luckily, my baggage was, for the greater part, removed; and thus, though most of the property in the house

was consumed, I had chiefly to regret the loss of my only available barometer. The two which I had brought from England had been damaged in the voyage, and could not be repaired at Montreal; and the one thus unfortunately lost had been most kindly obtained and presented by Mr. Walker, to whom we were under many other obligations.

As I was compelled to hire a certain number of *voyageurs* for the expedition, and they are generally an extremely superstitious race, there was reason to apprehend that I might find a difficulty in doing so, if, as was not unlikely, they chose to construe as an evil omen this untoward accident, marking the moment of our departure. I must own, therefore, that it was with some pleasure that, on arriving at La Chine the following morning (April 25th), accompanied by my friend Colonel Macdougall, I found them far too assiduous in their libations to Bacchus, to be subject to any less potent influences.

Notwithstanding the alarm and confusion of the preceding night, a number of the officers of the garrison, and many of the respectable inhabitants, collected spontaneously together, to offer us a last tribute of kindness. We embarked amidst the most enthusiastic cheers, and firing of musketry. The two canoes shot rapidly through the smooth waters of the canal, and

were followed by the dense crowd on the banks. A few minutes brought us to the St. Lawrence, and, as we turned the stems of our little vessels up that noble stream, one long loud huzza bade us farewell!

Both our *maître-canôt**, and the other, which was of smaller dimensions, were rather lumbered than loaded. Every package had been reduced or augmented to a "piece" of 90 lbs. weight; and, as there were only about fifty of these altogether, we were what is termed "half-loaded," and in a condition, therefore, to make reasonable speed, with any thing like an efficient crew. In our case, however, there was an unavoidable mixture of old hands and "*mangeurs de lard*," or green-horns; and there was scarcely one who had failed to take advantage of the last opportunity of getting drunk. At the head of them was Paul, an old Iroquois guide, who was, however, otherwise invaluable, as, I really believe, he knew the situation of every dangerous rock in the whole line of rapids between Montreal and Hudson's Bay.

Turning off to the right, we entered the Ottawa, which (like the Moselle after its confluence with the Rhine), for some distance below the junction rolls on its brown waters unmixed

* A large canoe used between Montreal and Fort William, on the banks of Lake Superior.

with the clear stream of the St. Lawrence. On coming abreast of a village, near which stood a large cross, a few paces from the church, the more devout of the *voyageurs* went on shore, and, standing in a musing posture, implored the protection of the patron saint in the perilous enterprise on which they were embarked; while their companions, little affected by their piety, roared out to them to "*s'embarquer*," and paddled away to the merry tune of a lively canoe song. We soon reached the rapid of St. Anne; and, having ascended it with a trifling injury to one of the canoes, we encamped on an island in the pretty Lake of the Two Mountains.

As our route was precisely the same with that followed by the Company's people every season, which has been described by Sir A. M'Kenzie, as well as by more modern travellers*, a minute detail of our progress seems unnecessary; and it will be sufficient merely to indicate a few of the principal places in the line of country from La Chine to the south-west end of Great Slave Lake, from which point the discovery properly begins. By the kindness of Colonel Duvernet, the canoes were permitted to go through the government canal, which cuts off the dangerous rapid of the *long Sault*. They were afterwards towed by

* Herman, Ross, Cox, Sir J. Franklin, Major Long, &c.

the steam-boat which plies between that place and Bytown, a village beautifully situated on the heights between the Rideau and the Chaudière Falls; in which latter, only the evening before several raftsmen had been unfortunately engulfed. Lieutenant Kains, who commanded the steam-boat, could not be prevailed on to accept any remuneration for the important service thus rendered to us.

During the night, two of our young hands deserted; a casualty, however, which did not give me any uneasiness, and relieved me from any further apprehension on their account. Indeed, the probability of such an event is usually taken into account by those who are accustomed to this mode of travelling, and a few extra men are generally engaged as a reserve.

April 28. — Having arrived at a portage — by which term, it is almost unnecessary to say, is understood a place where, by reason of some obstruction to the navigation, it is necessary to carry the baggage and canoes — we were kindly invited to breakfast at the house of an Indian fur trader of the name of Day. This old gentleman declared, that his feelings were so warmly excited by the praiseworthy object of the expedition, that he could hardly refrain, even at his advanced age, from offering his services. At one of the Company's posts, called Fort des Chats,

I found my three men who had been sent from Montreal; and, having embarked them, with seventeen "pieces" out of nineteen which had been forwarded by the steam-boat, we proceeded along rapids, which more or less detained us until we got to Fort Coulonge. The houses above this were far apart, and the population comparatively thin; but, on my return in 1835, I was agreeably surprised to see many comfortable dwellings erected in the interval, surrounded by smiling corn fields, and animated by groups of both sexes, who looked from the windows or stood on the banks to see us pass.

Leaving the Ottawa, we diverged to the left, up a deep and black stream, so overhung by sombre rocks and withered trees, and so bleak and lifeless, that it seemed the very home of melancholy and despair, and forced upon my recollection an admirable painting representing Sadak in search of the waters of oblivion. It took us to Lake Nipising, whence we descended by the Rivière des Français into Lake Huron; our progress through which was so impeded by fogs and head winds, that it was not until May 11th that we reached the Sault de Ste. Marie, at the head of the lake, and the extreme point to which civilisation has yet extended.

Some surprise was testified at our early arrival by my old acquaintance Mr. Bethune, who in-

formed me that the vast quantity of floating ice on Lake Superior had prevented his forwarding the despatches mentioned by Mr. Keith before the 1st of the month; so that, in reality, they were only eleven days in advance of me, though sent from England in December. My only regret at this circumstance was, the very limited time which would be thus afforded Mr. Simpson for aiding the expedition in the efficient manner to which, I was well assured, his zeal would prompt him. As yet, I had not one third of the necessary number of volunteers to go through the service; and there were many other important arrangements that could be satisfactorily made by the resident governor alone.

Owing to the scarcity of provisions in the interior, it became advisable to take a supply for five weeks; and a third canoe was purchased to assist in carrying it. Before leaving the Sault, I waited on the officers of the American garrison, accompanied by the gentlemen of the Company; and it is almost superfluous to say, that we experienced a reception in perfect keeping with the strong feeling of interest which had been manifested for us throughout the state of New York. But the commanding officer, Captain Baxly, not satisfied with the ordinary courtesies of polite attention, sent us a more substantial proof of his kindness, in the shape of prepared venison,

tongues, sweet corn, and many other dainties; which, though most welcome on their own account, were, in my estimation, still more valuable for the feeling which had prompted the present.

Nothing beyond the ordinary causes of detention occurred while crossing the northern extremity of Lake Superior. At a post called the Pic, we were liberally supplied with fresh butter and fish by my old friend Mr. M'Murray, who would willingly have had us remain the night with him. The inviting appearance of the weather induced us to decline his hospitality; and it was not a little mortifying, therefore, to find ourselves soon enveloped in a dense fog, which baffled the skill of the guide, and compelled us to land.

On the 20th of May we arrived at Fort William, much to the astonishment of Mr. D. M'Intosh, the gentleman in charge, who assured us that the light canoes of the preceding season had been fully twelve days later. It was here that the large canoes were to be exchanged for smaller, better calculated to overcome the numerous impediments which obstruct the navigation of the inland rivers; and I had every reason to be satisfied with the two beautiful ones which had been constructed for the purpose, by the direction of Governor Simpson, and under the superintendence of Mr. M'Intosh.

An entire day was now devoted to the examining and repacking of our various stores and instruments. Our "North Canoe," brought from Montreal, was also repaired; for, lumbered as we were with provisions, it was found impracticable to ascend the shallow waters of the Kaministiquoia without taking her, in addition to the two new ones; and I did this the less reluctantly, as no extra expense was thus incurred, and there were hands enough to manage the three.

The Canadian *voyageur* is, in all respects, a peculiar character; and on no point is he more sensitive, or, rather, to use an expressive term, more *touchy*, than in the just distribution of "pieces" among the several canoes forming a party. It must be admitted, at the same time, that he has very substantial reasons for being particular in this matter, for he well knows that, supposing the canoes to be in other respects equally matched, a very small inequality of weight will make a considerable difference in their relative speed, and will occasion, moreover, a longer detention at the portages. The usual mode is for the guide to separate the pieces, and then to distribute or portion them out by lots, holding in his hand little sticks of different lengths, which the leading men draw. From the decision so made there is no appeal, and the parties go away laughing or grumbling

at their different fortunes. These important preliminaries, therefore, being settled to the tolerable satisfaction of those concerned, we took leave of our friendly host, and encamped at the imposing fall of Kakabikka, by the *voyageurs* commonly called the Mountain Fall. This has been well and graphically described by Major Long * and Sir J. Franklin † ; in magnitude it is inferior only to the Niagara or the Falls of Wilberforce, whilst it far surpasses both in picturesque effect.

On the 26th, the despatch canoe (a sort of mail) overtook us at the Savannah portage ; and I gladly seized the opportunity it afforded me of sending a letter to Mr. Simpson, with a requisition for men and stores, and a request that he would do me the favour to make certain inquiries as to the most practicable route to the Thlew-ee-choh-dezeth. ‡

While descending the narrow and encumbered stream of the Savannah, William Malley, one of my volunteer artillerymen, slipped off a floating tree, as he was attempting to open a passage for the canoes, and narrowly escaped being

* " Narrative of an Expedition to St. Peter's River, Lake Winnepeg," &c.

† " Second Journey to the Polar Sea."

‡ Dezeth, desseh, tessy, &c. being only the same word for river, will in future be omitted in the Narrative.

drowned ; but he bore the accident with so much indifference and good humour as to call forth the admiration of Paul, who at once predicted that he would make a good *voyageur*.

On the 31st, we crossed Lac de la Pluie, which well sustained its name and character, by receiving us with a pelting rain which drenched us to the skin. There was neither meat nor fish at the Company's establishment, and, owing to the failure of the crops, scarcely any rice, (wild rice, *Folle arvine*, *Zizania aquatica*,) which is generally abundant at this solitary station, growing in the swampy ground round the lake. We encamped on a small island in the Lake of the Woods, which was literally covered with a dwarf species of prickly pear (*Cactus opuntia*), much to the annoyance of the men, whose feet were soon stuck full of its irritating prickles.

On the 6th of June we arrived at Fort Alexander, situated at the southern extremity of Lake Winnepeg. Here I had hoped to find the governor, and was not a little disappointed when informed by Mr. Clouston, the gentleman in charge, that it might be several days before he arrived ; though, as the despatch canoe had left the day before, there was every reason to suppose that he was by that time in possession of my letter, and, therefore, would naturally infer that I could not be far off. Important as every hour

was to the accomplishment of my plans, it was of still greater moment to me to see Mr. Simpson personally; and, aware of the probability of our passing each other unobserved, if I attempted to hasten towards him in a canoe, I preferred the alternative of remaining quietly at the establishment, and so securing an interview which I so ardently desired.

To beguile the time, the stores were examined, and the few which the rain had damaged were exposed to the sun, dried, and carefully repacked. I also made a set of observations for the dip. The result was 79° 12′*, making a difference of 25 minutes from those taken on a former occasion. The vibrations and dip were ascertained alternately, according to the face of the instrument; and all were satisfactory enough, except needle No. 2. *reversed*, with the face of the instrument east, when a considerable alteration appeared both in the number of the vibrations and the point at which the needle finally rested. A second trial showed a similar discrepancy. The reason of this peculiarity I could not divine until about an hour afterwards, when some gentlemen arrived from the westward, and acquainted us that they had just encountered a severe thunder shower, though the sky over the fort

* The results are those given by the instrument, without any correction for temperature.

underwent no visible change, and wore the same sultry aspect as it had done most of the forenoon.

Amongst the people who had accompanied us from Montreal, was a tall fine-looking fellow of the name of Larke, who had volunteered, and, indeed, had taken a great deal of trouble to get entered, for the expedition. He had passed a part of his life in the woods, was particularly well qualified for such an undertaking, and had attracted universal admiration by his apparent determination to brave all difficulties. This man now, however, came to me, and in a humble tone solicited his discharge, as, to use his own phrase, "he was sure we should be all starved to death;" and so firmly was this unmanly resolution fixed in his mind, that he declared nothing should force him to go on. It is unnecessary to say that such pusillanimous weakness was utterly irreconcilable with an enterprise like that in which we were engaged, which demanded an entire sacrifice of home comforts, and an enthusiastic and unreflecting ardour in the prosecution of its objects. I was not sorry, therefore, that the disease had shown itself so early; for, had it broken out hereafter, at a more critical period of the adventure, the infection might have spread in a manner too formidable for remedy. He had his wish, and with it a recommendation, at the same time, to the Company to oblige him to serve, in some

distant part, the full term of his three years' engagement.

Mr. H. Berens, who was on his way to Canada from the Red River Colony, brought me the pleasing intelligence that Mr. Simpson would very shortly follow; and as the latter gentleman was about to return to England, without proceeding to the depôt at Norway House, it was fortunate that I had determined on remaining, though it was certain that nothing which prudence and experience could suggest would have been omitted to promote my views. I learned from Mr. Berens that the colony at Red River was in a prosperous state; and that notwithstanding the failure of the crops last season, meat was from three halfpence to two-pence a pound, and eggs three-pence a dozen.

June 10th.—Governor Simpson arrived, and communicated to me the measures he had adopted, as well as the result of a council held by some of the principal officers of the Company, respecting the affairs of the expedition.

Every aid, it seemed, was to be rendered to our operations; the stores were to be thrown open for our use; and the services and experience of several well-informed individuals were to be made available for preventing those accidents to which our remote situation, or other local circumstances, might particularly expose us. Part

of the stores ordered last year were at Cumberland House, and the remainder would be there before we reached that station. Of pemmican Mr. Simpson anticipated a less plentiful supply, on account of the migration of the buffalo from the plains in the neighbourhood of Carlton and Edmonton, the two principal posts for collecting that useful, and, to us, indispensable provision. Yet, as orders had been transmitted along the whole line of route up to Great Slave Lake to hoard provision for the expedition, there was every reason to believe that we should not be exposed to inconvenience.

Two additional men were engaged by the Governor; and for the rest he recommended me to go as speedily as possible to Norway House; where, by intercepting the different brigades of boats on their way to Hudson's Bay, I might have an opportunity of selecting a choice crew of old hands.

Two letters, which about this time I received from Mr. Simpson, are so creditable to him, both as regards his capacity as Governor and his feelings as a man, that, though written with no such view, I cannot deny myself the gratification of making them public. If they excite in others only a small part of the admiration with which I regarded them, Mr. Simp-

son will have no reason to complain. My own feelings towards him may be understood, when it is seen that he thus literally identified himself with the expedition, and, what was scarcely of less value, impressed those around him with the same sentiments.

" *To Captain Back, R. N., Commander of the Arctic Land Expedition.*

" Red River Settlement,
7th June, 1832.

" My dear Sir,

" I am in possession of two very valuable communications from you, which came to hand yesterday; one dated London, December 14th, 1832 — the other at Gros Cap, Lake Superior, May 12th, 1833.

" It is with unfeigned regret I have to state that imperious circumstances oblige me to forego the pleasure of a personal interview with you, on your route to the scene of your operations; but the state of my health is so deranged as to render it absolutely necessary for me to proceed direct from hence to Canada, and thence to England, for the benefit of medical advice. Indeed, so completely invalided am I at present, that in this communication I am obliged to have recourse to dictation, being unequal to the fatigue of writing.

" Permit me, however, my dear Sir, to assure you that I have perused these favours, together with the printed plan of the expedition under your command, with impressions of the most lively interest. Indeed, such are the humane and philanthropic views of the enterprise altogether, that they cannot fail to excite and command the sympathies of all with whom you may come in contact.

" For myself, allow me to say, that in my individual as well as official capacity, I am exceedingly anxious to further your benevolent views; and I cannot but rejoice that the conduct of the enterprise is intrusted to one whose experience, character, and abilities have been already so well appreciated by the British public in reference to former expeditions.

" What may be the fate of those who are the objects of your humane exertions it is, in the present state of things, impossible to say. Should the worst forebodings be realised, still the expense and fatigue of the expedition will be compensated abundantly in the valuable acquisitions which discovery and science will acquire, collaterally, in its prosecution; while the public in general, and your party in particular, will have the proud satisfaction of having done all within the reach of human exertion for the relief of fellow

creatures supposed to be in circumstances at which our nature shudders.

" I fully concur in Mr. Keith's suggestions, respecting the necessity of getting experienced men who are inured to the fatigues of the country. There will probably be some difficulty in procuring volunteers; but I am happy to confide this part of the arrangement to Messrs. Chief-factors Cameron and Christie, gentlemen, who, from their experience in the country, and well known benevolence of character, are eminently calculated to assist in furthering the well-being and comfort of the party. Mr. Charles will meet you at Jack River, and is directed to give you the full benefit of his experience and local knowledge of the country about Slave Lake and its vicinity.

" By the enclosed you will perceive that the Council have nominated four officers in the Company's service, all men of courage and ability; any one of whom will be fully adequate to the duties which may devolve upon him under your command. Hope of speedy promotion in the service is the reward held out to such person of that number as may embrace the opportunity of aiding and furthering your views and objects. In fine, I wish it to be perfectly understood that all our resources are available to you; that our craft will be at your service, and our stores

at your command; and that this letter is to be considered as sufficient authority for you to call those resources into action as occasion may require.

" Believe me, my dear Sir,

" Yours most faithfully,

" GEO. SIMPSON."

" *To Alexander R. M'Leod or Simon M'Gillivray, Esquires; and to Mr. John M'Leod, or Mr. Murdoch M'Pherson.*

" Red River Settlement,
5th June, 1833.

" GENTLEMEN,

" An expedition has been planned by the Governor and Committee and the Arctic Society, in which his Majesty's Government and the British public take the deepest interest, having for its object the discovery of Captain Ross and his crew, and the relieving them from their supposed perilous situation, if still in existence; together with the survey of those unknown regions on the northern coast of America lying between Point Turnagain and the Straits of the Fury and Hecla.

" The command of this expedition has been given to Captain Back, R.N.; and the Governor and Committe have directed that every support, assistance, and facility be afforded that gen-

tleman towards carrying the important objects alluded to into effect, which we are most anxious should be met with the best feeling, in spirit and to the letter.

" Captain Back will require the assistance of one of the Honorable Company's officers on this mission; and we see none so likely to render him the assistance required as one of yourselves. We therefore call upon one of you, in the order in which your names stand at the head of this letter, to join Captain Back without delay, and to act under the command of that gentleman in the service in question; and as an encouragement to enter on this dangerous service, we hereby assure to you Alexander Roderick M'Leod, Esquire, or to you Simon M'Gillivray, Esquire, our warmest support towards early promotion to a chief factorship, in the event of either embarking on this enterprise, and rendering to Captain Back such valuable services as we consider you qualified to afford; and to Mr. John M'Leod, or Mr. Murdoch M'Pherson, we hereby promise our warmest support towards early promotion to a chief tradership, in the event of either embarking on this enterprise, and rendering in like manner to Captain Back such valuable services as we consider you capable of affording, besides an increase of salary of 100*l.*

per annum for the time you may be employed on this expedition.

"I am, Gentlemen,
"Your most obedient Servant,
"GEO. SIMPSON."

Flattering, as these arrangements were, and in the hurry of our affairs decidedly the best that could have been made, I felt nevertheless that the time necessary to collect my party and stores, and convey them into the interior against the obstacles and difficulties of an unknown route, would seriously obstruct, if it did not entirely prevent, my getting to the Polar Sea this autumn. Not that this would materially affect our ulterior object, as I believe the most sanguine never contemplated the idea of our being in a condition to afford succour to Captain Ross and his much-enduring party before the summer of 1834. Yet for many reasons it was desirable that the situation and nearest route to the river Thlew-ee-choh, and thence to the sea, should be discovered, if practicable, by the time the laden bateaux should get to Slave Lake; more especially as it would tend to encourage the men, who, generally speaking, are always more or less nervous on new ground.

After the departure of Mr. and Mrs. Simpson, I prepared to leave Fort Alexander — to the

great delight of the *voyageurs*, who had been so tormented by the mosquitoes that they longed to get to the cool breezes of Lake Winnipeg, and indulge in the luxury of an undisturbed nap. My companion Mr. King, among others, was severely punished, to his no little disappointment, — as, being indifferent to the attacks of English insects of every description, he had fondly imagined he should be invulnerable to those of America. But a dipping in the Styx itself would not have saved him from the darts of the indefatigable searchers after blood to which he was now exposed; and he rose in the morning with features so changed that it was difficult to recognise the friend of the preceding night.

At 4 A.M. of the 11th of June, we left the establishment; but the wind blew so hard, that we had not proceeded more than three miles before the height of the waves, which broke freely over both sides of the canoes, obliged us to encamp. But few birds of any kind were seen; and though I remembered that on a former occasion the wild pigeons were very numerous, yet none were now found near the fort, though the cleared land around the Red River colony, not more than a day's march off, was said to swarm with them. On the 12th and following day we made considerable progress. The weather afterwards

became unsettled and stormy. Geese, ducks, plover, gulls, and tern, were seen sparingly scattered along the east shore of the lake, which, unlike the mountains to the north, which are limestone *, is composed of smooth and rounded granitic rocks of little altitude, intervening between low banks, with sand, and skirted by a swampy country behind. From the different ridges of sand in the bays between the rocks, and the increase of vegetation on them, I concluded that the shore was gradually gaining on the water ; and this opinion seems confirmed by the fact that the Company has been obliged to change the situation of Old Norway House, on the opposite side, owing to the rapidly progressive advance of the water there. In fact, it has so undermined and washed away the banks, as to have arrived within a few feet of a building, the distance of which from the edge of the lake in 1819 was upwards of three hundred yards. Few pelicans were noticed; and as these birds are faithful attendants at good fishing places, for which the lake is remarkable, the Canadians augured an indifferent season.

On the 17th of June, having hoisted the Company's flag, we arrived at the depôt called

* Richardson, Appendix to Franklin.

Norway House, situated on Jack River. Our reception was most cordial. Messrs. Christie, Rowand, Lewis, and Donald Ross, for most of whom I had letters from my excellent friend Mr. Garry, lost not a moment in tendering all the assistance in their power. But notwithstanding the good feeling on their part, some trouble was experienced from the exorbitant terms proposed by the men who seemed disposed to volunteer. The bulk of the people from the more remote stations had already passed the depôt; and those who remained, either reluctant to expose themselves to the hazard of what was justly considered an enterprise of danger, or influenced by the strong desire of gain, demanded the same privileges and emoluments which had been granted to the men employed on the two Government expeditions under Sir J. Franklin. Unreasonable as this seemed to us, we had no choice but to yield in part to their demands; and even then, it was not until I had taken infinite pains, by pointing out on the map the whole line of my operations, by lessening the danger and magnifying our resources, and, finally, by arousing the slumbering spirit of the Highlander, that James M'Kay, to whom I first addressed myself, — a powerful fellow, and one of the best steersmen in the

country,—at length consented to be my follower. The example once set was soon imitated, and others, more or less qualified, completed my list to within two of the complement. Two days sufficed to equip them ; and as a large supply of stores, together with sixty bags of pemmican and two new boats, or batteaux, were already at Cumberland House, I despatched Mr. King, with written instructions and fifteen men, to precede me to that post. I remained behind to secure, if possible, another steersman, and a middleman for a canoe, with which it was my intention to push on, by the Athabasca, to Great Slave Lake ; whence I hoped a route might be found to the Thlew-ee-choh, and where at all events an eligible place might be selected for our winter residence. About the same time Mr. Christie and several other gentlemen took their departure for York factory, with a promise to provide me, if possible, with an Esquimaux interpreter, either in the person of my old friend Augustus, who was expected from the Labrador coast, or in that of a lad of the name of Dunning, then at Churchill, and represented by Governor Simpson as equal to the task.

Messrs. Cameron, Lewis, Ross, and myself, were now the only persons left at the depôt ; and I may conscientiously say that I almost counted the hours, in my anxiety for the arrival of the

parties, from either of which it was supposed I might get the men required. They came at last; and two Canadians, former acquaintances of mine, presented themselves, almost breathless with haste, as candidates for the service. Their merits being known to me, I made no scruple about receiving them, and directed their agreements to be made out. In the meantime, however, returning to the camp, they were met by their wives, who were no sooner made acquainted with the transaction than they resorted to different, though as it seems equally efficacious, methods of diverting them from their purpose. The one, a good strapping dame, cuffed her husband's ears with such dexterity and good will, that he was fain to cry *peccavi*, and seek shelter in a friendly tent; the other, an interesting girl of seventeen, burst into tears, and with piteous sobs clung to the husband of her love, as if she would hold him prisoner in her arms. I had therefore to look elsewhere; and it was not until the 26th, that George Sinclair (born in the country, and an admirable steersman) engaged on similar terms with M'Kay. There now wanted but one; and this deficiency was with great kindness supplied by Mr. Cameron's allowing me to take an Iroquois belonging to the Company, on condition that if he went

beyond Slave Lake, he should be entitled to the same advantages as the others.*

All was now complete ; and, after writing despatches for His Majesty's Government and the Arctic Committee, letters, &c., I took leave of my worthy host Mr. Ross, and at 2 A. M., June 28th, left Norway House.

* The men engaged for the expedition were the following:—

James M'Kay	Steersmen.
George Sinclair	
Thomas Matthews	Carpenters.
William Matthews	
John Ross	Artillerymen.
William Malley	
Hugh Canon	
David Williamson	
William Rowland	Fishermen.
Thomas Anderson	
Malcolm Smith.	
Donald M'Donald.	
Morrison Morrison.	
James Spence	Engaged afterwards.
Peter Taylor	
Charles Boulanger.	
Pierre Kanaquassè.	
Thomas Hassel	Interpreter.

Also the following, who were subsequently discharged : —

Antoine De Charloit.	Pierre Ateasta.
——— La Charité.	Two more Iroquois.
Olivier Seguin.	François Hoole.

CHAP. II.

Commencement of the Expedition. — Interview with Mr. Charles.— Wind-bound by a Land Gale.—A Receipt for the Cure of "Blue Devils."—Description of a Voyageur's Tent. — A Land Storm. — The Grand Rapid. — Advance of Cultivation. — Arrival at Cumberland House. — Departure of the Bateaux under Mr. King. — Embark in a Canoe. —Working of the Boats in the Rapids. — Isle à la Crosse — Buffalo Lake. — A Squall. — A Skunk.—Portage la Loche.—Effect of the Scenery. — Interview with Mr. Stuart and Mr. A. M'Leod. — The latter volunteers to accompany the Expedition. — Arrive at Fort Chippewyan.—Information as to the supposed Route by the Fond du Lac. — Journey resumed. — Salt River. — Sketch of a Party of Indians. — Description of the Salt Springs. — Indian Encampment. — Information of the Natives as to the Rivers Thlew-ee-choh and Tĕh-lon. — Arrival at Fort Resolution.

June 28th. — This was a happy day for me; and as the canoe pushed off from the bank, my heart swelled with hope and joy. Now, for the first time, I saw myself in a condition to verify the kind anticipations of my friends. The preliminary difficulties had been overcome: I was fairly on the way to the accomplishment of the benevolent errand on which I had been commissioned; and the contemplation of an object

so worthy of all exertion, in which I thought myself at length free to indulge, raised my spirits to a more than ordinary pitch of excitement.

We paddled along, with little respite, until 5 P. M., when a small speck was seen under the steep sandy cliffs round Mossy Point, on the northern boundary of Lake Winnipeg. It was coming towards us, and was at first taken for an Indian canoe; but as we approached, I had the satisfaction to find that it was the Company's light canoe from the Athabasca, with Messrs. Smith and Charles, two gentlemen whom I had long wished to see. From the latter I now learnt that he had made every endeavour to obtain, by inquiries from the Indians, a tolerably correct notion of the situation of the river Thlew-ee-choh; the result of which was an opinion that it ran somewhere to the north-east of Great Slave Lake, in a position not far from that which had been speculatively assigned to it by my friend Dr. Richardson and myself. Mr. Charles had further been informed by an Indian chief, called the "Grand Jeune Homme," whose hunting grounds were in the neighbourhood of Great Slave Lake, that the Thlew-ee-choh was so full of rapids as to make it doubtful if boats, or indeed large canoes, could descend it; but that, by pursuing a different course to a large river, called Tĕh-lon, such difficulties would be avoid-

ed; whilst the distance between the mouths of the two rivers was so trifling, that the smoke of a fire made at one was distinctly visible at the other. The chief had drawn a rough outline of the track, some part of which I recognised as being on the borders of Slave Lake; but the directions assigned to the rivers could not be explained by either of the gentlemen, nor was I able to bring myself to any satisfactory conclusion about them. The waters, however, were described as abounding in fish, and the country in animals; and, what was not less gratifying, the chief and some others were willing and desirous to accompany me.

Mr. Charles was the officer in charge of the Athabasca district; and having resided at Chippewyan Fort, he was well qualified to judge of the accuracy of an opinion expressed by Mr. A. Stewart, a gentleman whom I had seen at Montreal, that a practicable route might be found from the bottom or eastern extremity of that lake. He disclaimed, however, any knowledge of such a route, though he thought it desirable that I should ascertain the fact. He, as well as Mr. M^{c}Kenzie, at Isle à la Crosse, had provision for us, if required; and after some further arrangements respecting boats at the north end of Portage la Loche, and the procuring of dogs along the route, in all of which he cheerfully met my

wishes, we separated, both for the sea, though in directions very different. The evening was calm and clear, and, if the strength of the men had been equal to my impatience, we should have passed the night on the water; but they had been nearly eighteen hours labouring at the paddles, and I could not refuse them a little rest: at $8^h\,40^m$ P.M., therefore, we encamped on the beach, and were instantly beset by swarms of mosquitoes.

The appearance of the cliffs or steep banks, from Mossy to New Limestone Point, is somewhat remarkable: they are composed of clay, with a superstratum of vegetable substances about six feet thick; the layers of which appear to be horizontally foliated, like the leaves of an outspread book. In colour they vary from a blackish brown to a light ochre, and they rest entirely on a substratum of calcareous sand, with small fragments of water-worn limestone, on which the lake is constantly encroaching, as may be distinctly seen by the numberless broken stems of trees, whose roots are yet green in the soil.

We started at three o'clock on the following morning, and were soon relieved from the fatigue of the paddle by a favourable light breeze. To go on shore and trim a mast was the work of ten minutes; but as, according to the old adage, "it never rains but it pours," so our light breeze was

soon converted into a gale. In an hour or two we were compelled to run the canoe into shoal water, to save her from being swamped in deep; and each man, getting out, waded with the baggage to a place of shelter, where the canoe also was secured.

Nothing is more annoying to a sailor than to be wind-bound on fresh water. "On the wide ocean ranging," he is more resigned to the imperious will of the elements; but, to be stopped for an indefinite time, within sight of birds and animals gamboling in the gale, is a species of annoyance which quite overcomes his philosophy: at least, it was so with me; so, to dispel the moody fit which was gathering, I drew on a pair of Esquimaux boots made of seal-skin, and, taking my gun, made the tour of a thickly wooded swamp, which was so interlaced with undergrowth, willows, and fallen trees, that, when once in, I found it no easy matter to get out again. In the exertion necessary for extricating myself my restlessness found a vent, and the exercise soon restored my mind to its usual tone, and prepared it for other occupations. I returned to the tent thoroughly tired; and, here reclining in the full ease of a *voyageur*, I amused myself with observing the odd assemblage of things around me. At my feet was a rolled bundle in an oil-cloth, containing some three blankets, called a bed; —

near it a piece of dried buffalo, fancifully ornamented with long black hairs, which no art, alas! can prevent from insinuating themselves between the teeth, as you laboriously masticate the tough, hard flesh;—then a tolerably clean napkin spread, by way of table-cloth, on a red piece of canvass, and supporting a tea-pot, some biscuit, and a salt-cellar;—near this a tin plate, close by a square kind of box or safe, of the same material, rich with a pale greasy ham, the produce of the colony at Red River;—and, last, the far-renowned pemmican, unquestionably the best food of the country for expeditions such as ours. Behind me were two boxes, containing astronomical instruments, and a sextant lying on the ground;—whilst the different corners of the tent were occupied by washing apparatus, a gun, Indian shot pouch, bags, basins, and an unhappy-looking japanned pot, whose melancholy bumps and hollows seemed to reproach me for many a bruise endured upon the rocks and portages betwixt Montreal and Lake Winnipeg. Nor was my crew less motley than the furniture of my tent. It consisted of an Englishman,—a man from Stornaway,—two Canadians,—two Métifs (or half-breeds),—and three Iroquois Indians. Babel could not have produced a worse confusion of unharmonious sounds than was the conversation they kept up.

Towards evening the wind abated, and I made sure of resuming the march in the night; but the clouds soon grew heavier, and sent forth, at intervals, hollow-sounding gusts of wind, the harbingers of a strong gale, which the morning of the 30th ushered in. The lake resembled one rolling sheet of foam, which contrasted strongly with the dark slaty sky to windward: the mosquitoes had vanished; six or eight gulls, unable any longer to sustain their flight in search of food, had huddled together on the lee side of a projecting sand-bank; and two crows, wearied with exertion, sat perched on the waving branches of a tall pine, unscared by the approach of intruding feet. It was altogether an impressive scene of picturesque and melancholy wildness. I assembled the men in the tent, and read divine service. In the evening a fire-fly was seen.

July 1st. — An opportune change in the weather allowed us to get away; and, having passed the limestone rocks bordering that part of the lake, we shortly arrived at the Grand Rapid, the interesting particulars of which are too well and too minutely described in Sir John Franklin's Narratives, to require or even justify a repetition here.

Some "freemen" *, Indians, and other idlers,

* Persons who, having been in the Company's employ, have obtained their discharge, and are living on their own exertions.

had, according to their usual custom, congregated at either end of the rapid, with the view of intercepting the voyagers, as they passed to and from the interior, in order to barter their maple sugar, or, in consideration of a recompence, to assist the exhausted crews in carrying their heavy burdens across the portage. Many were sick, and all bitterly complained of the late scarcity of animals.

Having poled up several rapids, we got to Cedar Lake, the well-known "Lac Bourbon," where Indian barbarity, in its most hideous form, annihilated for ever the pious labours of the early missionaries.

In the River Saskashawan, I was not more pleased than surprised to behold, on the right bank, a large farm house, with barns and fenced inclosures, amid which were grazing eight or ten fine cows, and three or four horses. It belonged to a freeman, of the name of Turner, whom I regretted not having an opportunity of seeing.

At length, on the 5th of July, we entered the Little River, and got to Pine Island Lake. The crew had dressed themselves out in all their finery, — silver bands, tassels, and feathers in their hats, — intending to approach the station with some effect; but, unhappily for the poor fellows, the rain fell in torrents, their feathers drooped,

and such was the accumulation of mud, that it was necessary to wade a full mile before we could land at Cumberland House. Owing to the same cause, a creek leading from the Saskashawan had been rendered impassable; and dry land extended so far from the house into the lake, that the fishery, as I afterwards found, was diminished almost to nothing. During the whole of my stay there, though no pains were spared, not a solitary fish was taken. I was received by Mr. Isbester, a clerk of the Company, my companion, Mr. King, who had arrived without accident, and another person, who had been accommodated with a passage in the boat.

The boats, stores, and pemmican were in good order and quite ready; and, having made some arrangements with Mr. Isbester for our mutual convenience, and a few changes as regarded the different crews, I had the satisfaction of getting my two *bateaux* away, under the orders of Mr. King, on the 6th of July. Each was laden with a cargo of 61 pieces of 90 lbs. each, making, for both, 10,980 lbs., exclusive of men, bedding, clothes, masts, sails, oars, and other spars. Yet, with such steersmen as M'Kay and Sinclair, I had not the slightest apprehension for their safety, and looked with confidence to their arriving at winter quarters before the setting in of the ice.

It occupied the day to make some alterations in the canoe, and I availed myself of the interval to obtain observations on the dip, force, and latitude; the latter of which agreed, within three seconds, with Sir J. Franklin's. I also wrote to the Company for a further supply of stores to be forwarded with the outfit of the following season. The hope of getting sights for time induced me to remain a little longer than I had intended; but, as there was every appearance that the weather would continue overcast, I embarked about noon of the 7th of July, in the canoe, with eight hands; and, being comparatively light, we made tolerable progress.

On the following day we overtook Mr. King in the Sturgeon River, or, as it is more expressively named in the country, the Rivière Maligne. It may with perfect propriety be described as one uninterrupted rapid; and was at that period so low, that the boats had to treble their distance in going backwards and forwards for the cargo. A glance at their manner of working was enough to satisfy me of their capability, and confirmed me in the expectation that they would arrive early at Great Slave Lake. Still the contrast between us was great; and my skilful guide, De Charloît (a half-breed), did not fail to make the superiority of the canoe appear to the best advantage. The cumbrous

bateaux were dragged laboriously, a few paces at a time, by the united exertions of those on board and those on shore. Sometimes, unable to resist the impetuous force of the current, they were swept back; at others, suspended on the arched back of a descending wave, they struggled and laboured until they were again in the shelter of a friendly eddy. But the canoe, frail as she was, and too weak for the encounter of such rude shocks, was nevertheless threaded through the boiling rapids and sunken rocks with fearful elegance. The cool dexterity with which she was managed was truly admirable; not a "set"* was missed; and, as she glanced past the boats, she must have seemed to the envying crews as if endowed with preternatural powers. We were soon out of sight, and, by wading and poleing over shoals and rapids, at length reached the head of that dangerous and annoying river. The canoe was then examined; and, besides several minor fractures, she was found to have been grooved by the sharp and cutting rocks from one extreme to the other. For many days there was heavy rain, with thunder and lightning. The woods were burning in all directions; set on fire, according to the account of some Cree Indians,

* A "set" is the firm fixing of the pole against the bottom of the river, and a false "set" has often occasioned the loss of a canoe.

by their own hands, to scare the animals into the water, where they are more easily captured.

July 17th.—We got to Isle à la Crosse, where I made the necessary arrangements for the boats receiving twenty bags of pemmican, some dogs, and whatever might be further requisite for expediting their progress. Here, also, two new canoes were at my disposal, having been purposely made to prevent any disappointment in conveying the stores to the north of Portage la Loche, in case, as sometimes happens, there should be only sufficient boats to carry the trading supplies of the Company to their different posts. However, as my arrangements with Mr. Charles had obviated every difficulty in that respect, I had only to admire, and to express my thanks for, such considerate foresight; and, having made the accustomed observations for the dip, force, &c., I left the fort, and pursued my way.

Keeping to the left of Clear Lake, we entered Buffalo Lake, which, among a less rude and savage people, would certainly have formed the theme of many a legendary tale of "hair-breadth 'scapes," from the mischief-loving genius that haunts its shores. Few persons have ever completed the long traverse of this deceitful lake, without being favoured with a breeze that endangered their lives. I had been caught before; yet, from the

unruffled smoothness of its wide surface, I began to fancy that we were now to be exempted from the usual compliment. The men sung and paddled with energy, the fitful cry of a slightly wounded bittern, which lay at the bottom of the canoe, serving for an accompaniment; and we had gained the centre of the traverse, when suddenly a gentle air was felt coming from the well-known quarter of the Buffalo Mountain. The suspicious guide would now no longer permit even the customary rest of a few minutes to recover strength, but urged the crew to exertion; and they, ever and anon looking towards the blue summits of the mountain with something of a superstitious glance, made our light bark skim over the water like a thing impelled by wings. A dark cloud rose from behind the mountain, and began to expand towards the zenith; little gusts of wind followed; and in less than half an hour we were in the midst of a thunder-storm, that raised a sea from which there was no escape but by hoisting a shred of a sail, and running through breakers to the nearest lee land.

The place was a swamp, concealed by long grass; and, just as a spot had been found to pitch the tent, a man, in going to it, accidentally disturbed a skunk. The animal resented the intrusion in the usual way. In a moment there was a general complaint against the rank offence; every

one turned himself to windward, and the poor fellow who had unconsciously brought the evil upon us was half stifled with the noisome odour, and threw his capôt into the lake, with deep imprecations on the unsavoury and ill-mannered brute.

It was the 21st of July when we reached Portage la Loche, the high ridge of land which divides the waters running into Hudson's Bay from those which direct their course to the Arctic Sea. For about six or seven miles on this portage, the *voyageurs* are exposed to temporary but acute suffering, from the total absence of good water to quench the thirst, aggravated, in our case, by carrying loads of 200 lbs. in an atmosphere of 68° of Fahrenheit. They are, at the same time, incessantly tormented by myriads of insatiable mosquitoes and horse-flies, significantly called "bull dogs," which, delighted with the rare treat of a human subject, banquet on their victims till, not unfrequently, the face streams with blood. Happy, therefore, is the moment when the bright surface of the Little Lake is descried, which cools and refreshes their wearied frames. In addition to these evils, which are common to all, two of my party were sadly foot-fallen, and almost groaned under their burdens, — a sight too painful to be witnessed without compassion. However, in services such as

that on which we were engaged, it often becomes even a duty to stifle our sensations; or, rather, though we may and must feel, there are times when we must be careful not to express the feeling.

After labouring, with frequent halts, through the thick woods, we came suddenly upon the spot from which the picturesque and beautiful view from Portage la Loche bursts upon the sight. A thousand feet below, the sylvan landscape lay spread before us, to the extent of thirty-six miles, in all the wild luxuriance of its summer clothing. Even the most jaded of the party, as he broke from the gloom of the wood on this enchanting scene, seemed to forget his weariness, and halted involuntarily with his burden, to gaze for a moment, with a sort of wondering admiration, on a spectacle so novel and magnificent. My own sensations, however, had not the keenness of those of a stranger to the sight; and it was not without a sort of melancholy, such as results from satiety, that I contrasted my present feelings with the rapture which I had formerly experienced. It was, to me, Portage la Loche, and nothing more, — the same beautiful and romantic solitude through which I had passed and repassed on two former expeditions. There was nothing new to excite surprise, or quicken delight; not a spot or latent beauty, not even

a gleam of light glancing across the valley, which had not been well noted before, and diligently treasured in the memory. I looked upon it as I should look upon an exquisite but familiar picture — with pleasure, but without emotion.

There is something appalling in the vastness of a solitude like this. I had parted from my companions, and was apparently the only living being in the wilderness around me. Almost unconsciously I reloaded my gun ; and then, stepping cautiously along the narrow ridge of the descent, glided silently into the valley, as if afraid to disturb the genius of the place. It was a positive comfort to hear, now and then, the hollow tread of the men as they passed rapidly through the thicket which screened them from sight ; and when the white tent was pitched, and the curling smoke rose through the dense green of the forest, it seemed as if the spell of the desert was broken, and the whole landscape was suddenly animated into life and cheerfulness.

July 23d. — The last loads were brought down to the water's edge, and, as soon as they were safely deposited, the men, exhausted with fatigue, threw themselves on the ground, and remained almost motionless for upwards of an hour. After this the canoe was gummed, and we embarked near some *bateaux* belonging to

the Company, which, Mr. Charles had informed me, might, if we pleased, be appropriated to our use.

On arriving at the Pine Portage, I was agreeably surprised by meeting Mr. J. Stuart, and Mr. A. R. M'Leod, who had got thus far on their way from M'Kenzie's River, with a large cargo of furs. I had looked forward with no little anxiety to the chance of seeing the latter gentleman, not only as he was the first person named in Governor Simpson's circular to accompany me, but as being an old acquaintance, and one whom I knew to be particularly well qualified for the performance of those duties which the nature of the service would require. Indeed, his refusal to accompany me would have placed me in a very awkward predicament; for I had reckoned on his assistance in many matters which could not, without great inconvenience, have devolved on myself. It was therefore of importance to secure him; and my friend Mr. Stuart, to whose kindness and love of enterprise I was no stranger, undertook at once to break the subject to him. But there was no necessity for mediation; for, although Mr. M'Leod had long been indisposed, and was then on his way to Canada, with a view to the re-establishment of his health, no sooner did he see the circular from Mr. Simpson, and learn the humane

object of my mission, than he removed every apprehension from my mind, by declaring his sympathy for our long absent countrymen, his satisfaction at seeing me, and his gallant determination to sacrifice his own plans to the pleasure of becoming my companion. I wrote, therefore, immediately to the Company, and, with his able assistance, made a requisition, in full, for the necessary supplies, to support the expedition during the year 1834. Mr. Stuart, I believe, was scarcely less delighted at his friend's decision than myself, and, besides many useful suggestions, of which I was glad to take advantage, generously offered every aid, public and private, within his power.

July 25th.—There was so much difficulty in stowing the additional baggage, that my guide declared the canoe would not hold us: and when it is considered that he had to make places for six more persons, viz. Mr. M'Leod, his wife, three children, and a servant, whom I hired at the same rate as the others; in other words, that fourteen were to be crammed into a space intended for eight or nine, it is not surprising that he should indulge in a growl. He foresaw that, with such extra weight, his "cher canôt" would very possibly get broken; and his apprehensions were soon verified by our striking against a sunken rock.

After some detentions of an ordinary kind, we got to Fort Chippewyan on the 29th of July. We arrived so early, that we were not in the least expected; and the canoe was not seen until within a short distance of the land, — a circumstance by no means pleasing to the guide, who, besides his own decorations of many coloured feathers, &c., had taken more than ordinary pains to display to the best advantage the crimson beauties of a large silk flag. The sleeping inmates were, however, at length roused; and we were welcomed by Mr. Ross, who had been left by Mr. Charles in charge of the establishment.

It was to be regretted that the whole of the Indians usually resorting to this station were, at the time of our visit, too much dispersed to allow of any one in particular being sent for; so that we were obliged to rest satisfied with the meagre narrative of an infirm old Indian, who, in his youthful days, had passed by the Fond du Lac to the rivers I was in search of; and his account was too vague and uncertain to warrant any hopes of success in that direction. Mr. M'Leod, indeed, who had been at the Fond du Lac, confirmed the statement I had first heard, that there was a river there which was known to take its rise far to the north: but yet, when the old man concluded his description of the country by remarking, that "he was old and of

no importance in his tribe; and he did not like to say too much," — a tone which, however praiseworthy for its modesty, was very different from the bold expression with which an Indian, conscious that he is right, usually concludes his answers to similar inquiries, as, "It must be so, for my eyes have seen it," — I say, when I heard this, I abandoned at once all idea of going by the Fond du Lac.

Besides the provisions required from this post, there were many other indispensable articles that could not be provided elsewhere; but under the superintendence of Mr. M'Leod, the greater part, together with the necessary implements for building a new establishment, were ready in a couple of days. In that interval, I obtained observations for the dip, force, &c.; and with an increased cargo of several bags of grease, iron-work, guns, and bales of leather, which were put into a second canoe, which I thought might be convenient in the event of finding any shoal rivers to the north, we quitted the fort late in the evening of the 1st of August; further instructions being left for the guidance of Mr. King, on his arrival with the *bateaux*.

The lake was unusually low this season, and, in consequence, we had more than ordinary trouble in crossing the flats to Stony River, where we encamped. The following night was

remarkably calm, and we heard the sound of the Falls at a distance of twenty miles. Great matted rafts of drift wood were floating down the Slave River; and on reaching the Rapids and Falls, the water line on the rocks showed a depression of six feet lower than I had ever seen it. Numerous sand and mud banks, of considerable elevation, had been thrown up, and were already green with incipient vegetation. On the granitic rocks of the Mountain and Pelican Falls (which were bare and clean when Sir J. Franklin passed) was a deposition of at least fourteen inches of mud, a proof how great a quantity is annually carried down by the spring floods into Slave Lake.

August 4. — The thermometer this morning was only 36°; and a cold N.W. gale blew, which, being directly against us, counteracted the current, and almost prevented the canoes making head-way; we were, consequently, five hours in accomplishing the twelve miles, which brought us to the Salt River. Here there had been a recent encampment of Indians. From the marks about the place, it was supposed that they had ascended the river to the plains, which are generally well stocked with buffalo and other animals; and, as it was material to have an interview, the lading was taken out of my canoe; and with Mr. M'Leod for a companion, I went, quite

light, in search of them. We had hardly rounded the second point, when the sight of a "cache*," suspended from the apex of a deserted lodge, convinced us that we should soon come up with the stragglers; and, accordingly, about a quarter of a mile farther, two young Indians thrust their dark bodies through the branches of the trees, and called to us to stop. They formed part of the tribe of Slave Lake Indians, who were expected to be in this direction, and their friends were not far from them. They merely told us what we well knew, "that there was little water in the river, and they doubted if we could get up." Shortly afterwards, we met a whole fleet of canoes, whose approach was notified by loud and discordant sounds — a horrible concert of voices of all ages, utterly indescribable. Their chief was an intelligent looking old man, called by the traders, "le camarade de Mandeville;" and from his extensive knowledge of the country to the northward and eastward of Great Slave Lake, there was every reason to expect considerable information, if it could only be wormed out of him. To achieve this, Mr. M'Leod returned with the Indians to our encampment; there with all befitting ceremony to open the preliminaries by the customary pipe: for a social

* Secreted heap, or store of any thing.

puff is to an Indian, what a bottle of wine is to an Englishman: "aperit præcordia," it unlocks the heart, and dissipates reserve.

The *tout ensemble* of these "people," as they, with some vanity, style themselves, was wild and grotesque in the extreme. One canoe in particular fixed my attention; it was small even for a canoe; and how eight men, women, and children contrived to stow away their legs, in a space not more than large enough for three Europeans, would have been a puzzling problem to one unacquainted with the suppleness of an Indian's unbandaged limbs. There, however, they were, in a temperature of 66°, packed heads and tails like Yarmouth herrings—half naked—their hair in elf-locks, long and matted—filthy beyond description—and all squalling together. To complete the picture, their dogs, scarce one degree below them, formed a sort of body guard, on each side of the river; and as the canoe glided away with the current, all the animals together, human and canine, set up a shrill and horrible yell.

By sunset I got well up the stream; but not having been there for thirteen years, and my crew being no better acquainted with the locality than myself, we took a wrong channel, and encamped. The following morning the route was regained; and on arriving at the proper spot, we filled our

five large bags with pure and white salt, in the short space of half an hour. There were no mounds like those seen in 1820; but just at the foot of the hill which bounds the prairie in that quarter, there were three springs, varying in diameter from four to twelve feet, and producing hillocks of salt, from fourteen to thirty inches in height. The streams were dry, but the surface of the clayey soil was covered, to the extent of a few hundred yards towards the plain, with a white crust of saline particles. The plain itself had been trodden into paths, by the footsteps of buffalo and other herbivorous animals.

We returned the same way to the encampment at the mouth of the river, and found the Indians seated in clusters round Mr. M'Leod, still busy in listening to and answering his interrogatories. The information thus collected was made intelligible to me by means of an outline of the north-eastern country, drawn by the Camarade. In this sketch, the Thlew-ee-choh and the Tēh-lon were represented as maintaining a nearly parallel direction E.N.E. to the sea; though, where that sea was, whether in some of the deep inlets of Hudson's Bay, or, as I fervently hoped, more directly north, towards Point Turnagain, it was altogether beyond his knowledge to declare.

Capt.n Back R.N August 5th 1833

Engraved by E. Finden

Salt Plains, Slave River.

Published by John Murray, London, 1836

The relative bearings of several lakes, which many of their number had frequently visited, and of which, in fact, they knew every winding, were equally involved in doubt and obscurity. In one point alone were they positive and unanimous; and that was, the superiority and many advantages of the Tēh-lon over the Thlew-ee-choh. The former was described as being a broad and noble stream, decorated on either bank with tall pine and birch, and flowing in uninterrupted tranquillity to its journey's end. The latter was graphically pourtrayed, as originating in rapids — narrow, shoal, and dangerous — destitute of wood, even for fuel — full of dangerous cascades and falls — and after a course more tortuous than that of any river known to the oldest and most experienced of their tribe, tumbling over its northern barrier in a foaming cataract into the sea.

They also affirmed — agreeing in this respect with the information which had previously been given me at Lake Winnipeg, that the distance between the mouths of the rivers was inconsiderable; and concluded by saying, that if the Great Chief was determined on going to the Thlew-ee-choh, it would be without an escort of Indians, who, inured as they were to privation, would not expose themselves to the suffering which, in a district so sterile, was inevitable. To say the

truth, they were tired of the repetitions and details of my questions; and no wonder; for before I began, they had sat up with Mr. M'Leod the whole night, telling their prolix stories with much cheerfulness. I could not help smiling at the Camarade, who, puzzled and distressed at the many positions in which I requested he would place himself, so as to give me an idea of the bearings of what he was describing, at last rather peevishly exclaimed, "that we did not place the world as it was; whereas he kept steadily to the rising and setting sun."

In our progress down Slave River, we halted for a short time at a cache of Mr. Stuart's, having his permission to take from it a stock of birch bark, sufficient for building a new canoe. On the 8th of August we reached Great Slave Lake, and were received at Fort Resolution by Mr. M'Donnell, the gentleman in charge.

CHAP. III.

Inquiries and Embarrassments about the Route. — Preparations for Departure. — Embark in search of the Thlew-ee-choh. — Indian Encampment and Indian Politeness. — Point of Honour among Indian Hunters. — Description of the Country through which the Route lay. — A small Ice-berg seen. — A Bear Hunt. — Indian Inconsistency. — Description of the Coast Line. — Point Keith and Christie's Bay. — Eastern Extremity of Great Slave Lake. — Discovery of the River supposed to lead towards the Thlew-ee-choh. — Preparations to ascend it.

Soon after my arrival, I was informed by Mr. M'Donnell that the chief, called "Le grand Jeune Homme," who had been mentioned to me by Mr. Charles, was somewhere near the Buffalo Creek, a day or two from the house, employed in making canoes, in the full conviction that he was selected to accompany the expedition, and feeding his imagination with the thoughts of a boundless remuneration. Thinking it right to eradicate immediately so preposterous a notion, I despatched a couple

of lads in a canoe, to acquaint him of our arrival, and to require his attendance. In the mean time, there being many Indians at the Fort, and among them a half-breed, of the name of La Prise, whom I had seen on a previous occasion, and who had now become a kind of leader of a small party accustomed to hunt to the eastward, I thought it a good opportunity of gaining some information as to the bending of the Great Slave Lake, and the nature of the country at its eastern extremity. La Prise, who had been subjected to similar catechising by my friend Sir John Franklin, in 1820, at once understood me, and pointed to the compass, as an instrument with which he was acquainted. Having been placed right over it, he pointed his hand in the direction of the places required, while I carefully noted their magnetic bearings; and it is but justice to state, that the whole of his description was subsequently found to be remarkably correct. He made the lake run nearly north, and estimated the distance at about five days' march, for a light canoe, well manned. A young hunter, however, who had just come from that part, with a message from one of his companions, offering to take me by a new cut to the Tēh-lon, differed from La Prise, and with a bit of charcoal drew a sketch, of which the following is an accurate copy.

It was gratifying to observe that, according to this description, there was a water communication the whole way, with the exception of three portages, probably near the height of land. With this local knowledge of, I may say, every inch of ground in those directions, it was not a little singular that he, as well as all the rest of his tribe, was utterly ignorant of the situation of the Thlew-ee-choh. Not so, however, of its evil qualities; and, like the Camarade, they agreed,

one and all, in magnifying its dangers, and deprecating any rash attempt to launch a boat on its unnavigable waters. "And why," said they, "should the chief wish to go *there*, when the Tēh-lon is not only nearer, but offers him so many more advantages? where he will find, musk ox, moose, and rein-deer, wood, fish, and animals wherewith to pass a comfortable winter. It is true," continued they, "that our fathers *did go down* the Thlew-ee-choh, when they made war on the Esquimaux, a long time ago; but how few returned? and who is there now to tell of what they did, and what befell them? No one; — they are in the land of spirits, and our old men only remember their names."

Nor was this the only discouragement of my projected route by the Thlew-ee-choh, for at the same time a circumstance came to light, as unexpected as it was unwelcome. A Canadian, named Sanpére, had formerly, at Sir John Franklin's request, been sent by the gentleman at that time in charge of Fort Resolution, to ascertain the existence of the Thlew-ee-choh. The man accordingly set out, in company with the natives, and on his return gave a detailed account of his journey. But his guides, to some of whom I was speaking, now affirmed that on reaching the end of the lake next to Great Slave Lake, he became alarmed; and in spite of all

their efforts and remonstrances, refused to go farther, and returned back without having seen or even approached the river. They related minutely all particulars, and ended by remarking, that I was no stranger to Indians, and that when I passed the spot I should find that they had spoken the truth.

The account given by Sanpére had been generally credited; and I confess I was of the number of those who had relied on his veracity. This, however, being now rendered doubtful, if not absolutely destroyed, I was left in a state of very uncomfortable uncertainty. Besides, though the sketch of the young hunter represented the Tēh-lon as running to the westward of north, and the position of the sun was in favour of its maintaining that course, still I could not reconcile to myself the notion of high woods, frequented by moose, on the banks of a river flowing through the barren grounds, except on the supposition that it trended far away to the south-east, in a line for Hudson's Bay. Ultimately, therefore, after much embarrassment and perplexity, I decided on following up the original plan, as laid down in the paper read before the Royal Geographical Society; comforting myself with the reflection, that the observations of Black Meat, an old Indian warrior, whom I had known in 1820, were as likely to be correct

in this instance, as they had proved to be in other particulars on the two former expeditions.

My resolution being taken, I divided my crew into two parties. Five were to be left as an escort for Mr. M'Leod, and four were to accompany me in my search for the Thlew-ee-choh.

It happened, fortunately, that there was at the Fort a half-sized canoe, which was both lighter to carry, and in other respects more convenient than the larger one, for getting up the shoal streams which we expected to find to the eastward. This was immediately, therefore, put in repair; while Mr. M'Leod, who had the service as much at heart as myself, gave me the benefit of his assistance in arranging our future operations.

He undertook to wait and appease the Grand Jeune Homme, under the disappointment which it was thought he would feel at being rejected: for, knowing from past experience the constant trouble and anxiety that a leader, spoiled and indulged as he had been, would probably have given us, I deemed it more prudent, as it was certainly more economical, to dismiss him altogether, with a douceur for lost time, than to rest my hopes, and possibly the safety of my whole party, on the exertions of the most fickle and wavering of his tribe. Such a step, moreover, was necessary, by way of example, to moderate

the extravagant notions entertained by the Indians of our liberality; for, too dull to comprehend the disinterested principle on which the present expedition was undertaken, and viewing it in the same light as the preceding ones, they expected the same measure of bounty; and sunk into a moody silence, when told that I had only brought goods enough to satisfy the demands of my hunters; and that against them, as well as the others, a strict account would be kept.

The interpreter I had brought with me was a pure Indian, — a Chipewyan, who, under the auspices of the Company, had received the rudiments of an education at the Red River Colony. But being unaccustomed to speak his native tongue, he was not altogether adapted for the first introduction of a party amongst Indians, many of whom but rarely visited the trading establishments: —and, as much depended on the information to be communicated, and perhaps not less on the impression made on the people by the manner of address, I requested Mr. M'Donnell to lend me his interpreter, Louison, who had travelled with me before, and who, from his intimate acquaintance with the surrounding tribes, was peculiarly well qualified for our purpose. The inconvenience to him was considerable, yet, like the other gentlemen of the country, he cheerfully acceded to my request, and a tem-

porary exchange was effected, as agreeable, as I afterwards learnt, to Louison, as it was to myself. We were here also provided with extra clothing and shoes, in the event of being caught by the frost; and the remainder of the time, I occupied in making observations on the dip, force, &c., by which it appeared that an increased difference of three degrees easterly had taken place since 1825, in the variation.

While we were discussing our usual dinner of hard dried meat and pemmican, one of the hunters burst into the room, with the glad tidings of his having killed a moose deer, of which he had brought a small part with him. At the same moment, the servant entered with a bladder of fat in his hand, a sight which, from the great scarcity of that luxury, so surprised Mr. M'Donnell, that he exclaimed, "Good God! from what part of the country did that come?" Nor will this appear strange, when it is known, that he had not tasted any fresh meat since April; nor had I seen any since leaving Fort William.

Having written some letters of business, and left further instructions for Mr. King, I embarked the next morning, August 11th, at 6 A.M., in my old canoe, now manned by one Englishman, (William Malley, R. A., my servant,) one Canadian, two half-breeds, and two Indians.

The weather was squally and threatening, and a heavy swell, which sometimes rose into crested waves, warned us to avoid the open lake, and seek the protection of the windward islands. The canoe shipped much water, but the men kept on their work, and, after crossing an exposed bay, we soon reached the muddy entrance of the Little Channel. This took us to the Slave River, which we traversed, and discovered, on the eastern bank, a large party of Indians, who proved to be the same we had seen at Salt River. They were assembled in little groups, thinking that, according to the general custom of the traders, we should land; but perceiving that it was not our intention to do so, they called out, "What! does the great chief go past, without even offering us a pipe of tobacco?" However, on we passed, and entered a very narrow channel, where I began the survey, and shortly after another, called Cha-bilka, which is said to come from some lakes not far distant. Near to this was an Indian encampment, the occupants of which were busily and noisily employed in drying the meat of three recently killed moose. The successful hunters, apparently not a little vain of their prowess, were either lying at full length on the grass, whiffing the cherished pipe, or lounging on their elbows, to watch the frizzling of a rich marrow bone, the customary perquisite

of their labours. Women were lighting or tending the fires, over which were suspended rows of thinly sliced meat, — some screaming to thievish dogs making free with the hunt, and others with still louder screams endeavouring to drown the shrill cries of their children, who, swaddled, and unable to stir, were half suffocated with the smoke; while, to complete the scene, eight or ten boys at play were twining their copper-coloured bodies over and under some white bark canoes, like so many land dolphins. Poor creatures, their happiness was at its full: at that moment they were without care, enjoying themselves according to their nature and capacity. Is human happiness ever much more than this?

A clump of trees had prevented me from observing another group, consisting of La Prise and his followers. He had undertaken to paddle my half-sized canoe to the other end of the lake; but finding, as he said, that two persons were required to keep her free from water, he had wisely put on shore to repair her. After that operation, twelve of them, with several dogs, squeezed themselves into her, and yet managed so well, that we had hard work to keep way with them. On parting from the Indians, we were supplied with fresh meat. One of them, to show his respect, put on a surtout that he had purchased at the Fort. The coat was unbuttoned;

and, as he was unprovided with inexpressibles, the effect was extremely comical. It is curious, by the way, to observe that the notion of testifying respect by appearing *in full dress*, if in this case the term can be properly applied, is not confined to drawing-rooms and courts.

Hemmed in by willows on either side, we occasionally got a glimpse of the lake through various little creeks and openings, and shortly crossed the Grande Rivière à Jean, to enter the Petite Rivière à Jean, where the stream was in our favour. Its course was uncommonly tortuous, the banks being bordered by low land, covered with pine, poplar, and willow. The sharp sight of the Indians had detected a moose some distance ahead of us, and La Prise, being expert at approaching those quick eared animals, went in pursuit. Meanwhile we dropped silently down the stream along the opposite side, until a place was found dry enough for encamping. The night was clear and bright; and the men were earnestly watching the boiling of a kettle of meat, when they were startled by a long shrill whoop, which Louison the interpreter immediately answered, announcing, at the same time, that it was the small canoe, and that La Prise had killed his game. The splash of paddles was now heard in the distance; and in a few minutes the canoe, with its many inmates, glided against

the long grass, on the bank of the encampment, under the broad shade of which nothing was visible but the dark heads of the Indians, as they appeared and vanished, with the motion of their canoe. When Louison inquired if he had been successful, La Prise, with the characteristic of a true Chipewyan, answered in the negative, *Oolah.* Oolah! re-echoed the interpreter, in a disappointed tone, oolah! "Monsieur, il a manqué; who ever heard of the whoop without its accompanying prey?" Scarcely were the words out, when La Prise was at his side; and as he handed him the gun, gave from the other hand the fine tongue and nose of a moose. "There," said he; "I shot it through the heart, through an opening between the trees not wider than my hand: but it was with your gun and ammunition, which, according to our customs, you know, makes it your property. I thought the Chief would like to have the tongue and the nose*, and the rest lies at the bottom of the canoe for your disposal." This restraint on their appetite was the more remarkable, as they had scarcely eaten any thing for several days past; and the few scraps with which their friends had supplied them could not have sufficed for a single meal. But they never infringe this law among themselves; and

* Considered the choice parts.

nothing but imminent starvation would excuse the Indian who should transgress it. Nevertheless, such conscientious dealing merited a reward from me, which was easily bestowed by allowing La Prise and his party to retain the larger proportion of the animal.

August 12th. — We continued our course down the Little River; but the cold north-west wind, which bent the pines with its violence, too plainly indicated what was passing on the lake, which, accordingly, on our arriving at it, presented so stormy an appearance, as to forbid our venturing farther, and compelled us reluctantly to encamp. The night was very boisterous, and the morning of the 13th wore a threatening aspect; but suddenly it fell calm, the wind changed to south, and by 6 A. M. we were enabled to put out into the wide expanse of the lake. Keeping along the low swampy shore, thickly matted with drift wood, we made for a jutting elevation, called Rocky Point, and then striking off in a northerly direction, paddled with spirit for a cluster of distant islands, which, owing to the refraction of the atmosphere, appeared as if poised in the sky. This is the traverse so much dreaded by the Indians, who, having no stouter craft than their small canoes, are in great danger of perishing, if unhappily caught by a gale. A light breeze sprung

up to assist us, and, with the aid of the paddles, the islands were gained by 11 A. M. They were too numerous to be counted; but most of them were marked by small clumps of dwarf pine, and the one on which we landed produced whortleberries and cranberries. The rocks were all granitic, being either grey with plates of mica, or red felspar with quartz. From this position I could see the Rein-deer Islands and M'Kenzie's cape to the westward, a remarkably high round rock with innumerable islands to the northward, a clear horizon and spots of land to the eastward, and the main shore to the southward. Sending La Prise forward, that I might more easily get my bearings by having him as a mark, I followed myself shortly afterwards, but in no very amiable mood, having just discovered that either the bow or steersman had left our only frying pan at the last encampment, for the benefit of whoever might find it. This was a matter of no small consequence to me, who, however ready to rough it on pemmican, had been enjoying prospectively, for some days past, the rich rein-deer steaks which the "barren grounds" were sure to afford; nor did the assurance of the interpreter, who maintained that the "grillades" were just as good done in a kettle, afford me much consolation.

Following the small canoe through a labyrinth of islands, more or less wooded, some steep, round, and bare, others broken or shelving, covered with low pine and birch, we made a short turn to N. N. E., and opened into a fine long reach, bounded on each side by rocks, varying in height from two hundred to a thousand feet; which resembled in some parts those to the westward, about the Gros Cap, and in others still more closely the red granite of Chipewyan. The necessity of despatch forbade my landing, to ascertain the difference in these respects. The character of the scenery, so different from that which we had quitted in the morning, together with the northerly trending of the land, was the more gratifying, as it coincided with the Indian accounts, and led me to expect a long extent of navigation. The drift wood, found in such piles from the Slave River to the M'Kenzie, and far along the east and west shores of the lake, had now disappeared, and the water, no longer turbid and yellow, was of a pellucid green. Its temperature was 52°, while that of the surrounding air was 58°, having increased 12° since the morning. The extensive islands assumed a more mountainous character as we advanced; and it was observable that the western ones were more thickly wooded than those to the eastward. Through occasional vistas, the

distant blue land was seen faintly in the clear horizon to the right. At 8 P. M., the people being completely tired, I encamped for the night.

August 14th.— The thermometer had sunk to 30° ; and when at 4 A. M. we resumed our course, the water was found to be slightly encrusted with ice, which, together with the cold wind, so cracked and injured the bark of the canoe, as to make it necessary to repair her.

The country to the left became gradually less rugged, subsiding into round-backed hills, whose sloping sides were covered with wood ; the uniformity being agreeably broken by two light columns of smoke issuing at separate points, most likely from the fires of some straggling hunters. But the scenery to the right increased in grandeur and boldness ; and never, either in Alp or Apennine, had I seen a picture of such rugged wildness. Rising to a perpendicular height of upwards of twelve hundred feet, the rocks were rent, as if by some violent convulsion, into deep chasms and ragged fissures, inaccessible to the nimblest animal. A few withered pines, grey with age, jutted their shrivelled arms from the extreme ridge of the abyss : on one of which a majestic fishing eagle was seated, and there, unscared by our cries, reigned in solitary state, the monarch of the rocky wilderness.

Capt.n Back R.N August 13th 1833.

Engraved by E. Finden.

North Shore of G.t Slave Lake.

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Salvator alone could have done justice to the scene.

As we proceeded, the view was obstructed in part by two conical hills, apparently unconnected with the shore on either side, and exceedingly picturesque in their outline. They were not far from a point of the eastern main; whence, taking a long sweep to the right, and then stretching south and west in a broad belt of fifteen or twenty miles, it ultimately joins Rocky Point, at a distance of about fifty miles, measured in a direct line. To the whole of the islands included in this range I gave the name of Simpson's Group, in token of my esteem for the Governor. The channel between the western islands and the main is, in some parts, not more than a quarter of a mile broad; and this contraction is rendered the more apparent by the ripple of a rather strong southerly current, not observable elsewhere. It is favourable for fish, and subsequently a station was formed here. On opening round the northern end of the channel, a magnificent expanse of water was seen east and west, with clear horizons, dotted however with three islands, from the light mural cliffs of which the rays of the setting sun were softly reflected. The peninsula, dividing the waters of the south and north side of the eastern main, has been called Point Keith, in com-

pliment to Mr. J. Keith, the Company's agent at Montreal, whose name has already been mentioned in terms of merited commendation.

We next crossed a wide traverse towards some table hills, forming part of what the Indians called Rein-deer Island, the walled sides of which rose far above the sloping and wooded country at their base; and here we landed, to examine more closely its diversified formation. Either from the grinding pressure of the immense masses of ice that are forced on this exposed coast, or from the continued action of breaking waves, the whole line of shore, for two or three miles, is composed of a kind of pudding stone; containing large and small stones, all more or less globular, cemented by a yellowish clay, which has become as hard as rock. It varies in elevation from six to forty feet, and appears to run into the adjacent rocks, which attain an altitude of from fourteen hundred to two thousand feet, with an irregularity which contrasts strongly with the flowing outline of the western main, now discernible to the distance of twelve or fifteen miles. Re-embarking, we made for the point of an island, resorted to by the Indians for a particular stone, used for the making of pipes, and generally of a greenish-grey colour. On this occasion it was visited for the purpose of allowing one of them to inspect a small deposit of

tobacco, which in some season of affluence he had concealed among the rocks. His little treasure was in safety; and, trusting to my supplying his wants, he allowed it to remain for a future emergency.

The south-west face of the rock was smooth and almost perpendicular; and as we bore up to the north-east, it became still more so, extending to the extreme limit of sight, in one uninterrupted mural precipice, along the base of which was a succession of trap hills, with similar faces, and rounded summits. I could not but remark the resemblance of these last to the formations around Point Lake, and on the coast to the eastward of the Copper-mine. Being unable to land on this side, we made for the north main shore, on the declivities of which some patches of last winter's snow were yet visible. Here we disembarked; and, the tent having been pitched, La Prise set a net, which the following morning produced a few white fish, a trout, and, what surprised the Indians, an inconnu.*

August 15.—A smart head wind with a pitching sea did not allow us to do much with the paddles; and though we sought the lee of any thing that offered shelter, we were soon obliged to lie by. Presently intelligence was

* Salmo Mackenzii. See Richardson's Appendix to Franklin.

brought me that La Prise and an Indian in my canoe were quarrelling in a manner that foreboded a disagreeable termination. My appearance rather separated than reconciled them; since La Prise, in going apart, muttered out, "You may thank the Chief; but it is not finished: we shall meet on the barren lands." The weather becoming more favourable, the journey was continued, and we got to a narrow passage called Tal-thel-leh, or the part that does not freeze, — a fact verified during two successive winters, but for which we could assign no cause. The right shore was particularly bold and imposing: it was a continuation of the trap formation from Pipe-stone Point, with this difference only, that here it had the glittering light brown appearance of mica slate, and was piled, terrace upon terrace, to a height of eight hundred feet. The dip of the range was N.E. by E., with the face of the cliffs northerly. To the left, and not more than a mile from the trap, the rocks were principally gneiss, with here and there a jutting mound of red granite or porphyry. A southerly current was perceptible in the narrow; though the Indian positively affirmed, that it was the reverse in winter, as the ice was invariably packed towards the north, and not towards the south of the strait. A few larch and pine were thinly scattered; and the general appearance presented was that of rounded hills, intersected

on the one side by valleys, and on the other cut off in part by the mural precipices of the island already mentioned, which here rose into seven consecutive ranges, producing a singular and striking effect. Another island between this and the main, consisting of a single rock, the southern face of which was broken into columnar cliffs with large rhomboidal fractures, seemed to be basaltic.

The wind had fallen; but a heavy swell was running from the clear horizon before us, and dashed against the rocks with a violence sufficient to swamp a fleet of canoes. The smaller of the two canoes took in much water at every pitch; and as she leaked besides, the Indians prudently made for a small bay, where they landed, with no other damage than that of getting wet. They immediately called out to me not to persevere, as the shore was inapproachable for many miles, and added, that several of their friends had perished in the same place, from disregarding this counsel. And, indeed, we found as we proceeded a high surf lashing the beach; and had a gale come on, which, however was not indicated by the clouds, we might have had reason to repent our obstinacy. A large piece of ice was seen floating in the distance, in the pride of a miniature berg; a sight which so surprised the Canadian, who had been

long to the southward, near the Columbia, that he exclaimed, "Cela va bien, nous ne sommes pas mal avancés au nord," and the poor fellow actually thought we could not be far from the sea.

While rounding a projecting bluff or headland, near which I was told there was a river, our attention was attracted to the crest of a steep rock, where the keen eye of the Indian detected a poor bear, quietly regaling himself with a feast of berries. "Sass! sass!"* whispered he, and in a moment all were down to a level with the canoe, and remained motionless, except the bowman, who persisted in making signs perfectly unintelligible; until at last he said, in an under tone, "Dites-lui d'ôter son bonnet rouge," meaning my servant, an honest Lancashire lad, who, not understanding a word of French, had never ceased to look at the bear, without once thinking of his flaming red cap. "What!" exclaimed he, as he took it off, "will it frighten him?" The interpreter and Indian waded on shore, and crawling silently through the bushes, were soon lost to our sight. In a few minutes a couple of shots, followed by a whoop, proclaimed the fate of bruin; and we landed at a convenient spot to fetch the meat. While the men were absent on this errand, I strolled about and saw some gooseberries and currants on the bushes, still unripe; there were

* Sass, bear.

also a few roses yet in bud, the colour of which was a deeper red than that of the roses which grow more south. A brood of young ducks was likewise observed.

The party at length returned: the animal being small was slung on the bowman's back; and as he had placed a stick in its mouth to keep the jaws apart, and then tucked the head under his arm, his appearance, as he brushed through the wood, was ludicrous enough.

The evening being far advanced, we took advantage of a snug bay that completely sheltered the canoe from danger, and very soon after La Prise also arrived. He stated that after my departure he had discovered that the frost of the preceding night had split the canoe in several places, which at once accounted for its leaking; and that having repaired it, he preferred the risk of coming on to the chance of being left behind. The truth was, that having no provision of their own, his party regularly was supplied from our stock, and could ill brook, therefore, even a short separation. The aurora was brilliant, and in rapid motion until midnight, when the wind increased so much, that we could not move from the bay. The hunters were despatched in every likely direction to find deer; and, though unsuccessful, were much pleased at the many recent tracks they had seen.

By a set of observations made here, the latitude was found to be 62° 45′ 35″ N., the longitude by chronometers was 111° 19′ 52″·7 W., and the variation by Kater's compass 45° 31′ E. Thermometer at 3 P.M. 54°.

August 17. — The nets having been set over night produced eight white fish and a trout, which were equally divided; and at 4 A.M. we got away, and paddled against a cold north-east breeze. The main on one side, and a range of islands on the other, screened us, however, from its effects, so that by breakfast time we had accomplished a satisfactory distance, having passed on our way another small berg, and some patches of snow, which still lingered in the fissures and deep gullies of the hills. It is always difficult to get at the real meaning of an Indian, even on subjects with which he has been to a certain extent acquainted all his life, and on which one might reasonably expect something like a straightforward answer. Not only the others, but even the lad who had drawn the sketch, now began to hint that the Tēh-lon was far away to the south and east, and that the portages between the intervening lakes were long and bad for the transport of baggage, if not altogether impracticable. The Indians, it was observed, were never encumbered with any thing heavier than their guns, and perhaps a small canoe,

which was often left, in case the carrier were unable or unwilling to take it on. From the direction, too, in which they pointed to it, I was the more confirmed in my former opinion, not only that it lay considerably to the eastward, but also that it inclined towards Hudson's Bay.

On the other hand, one of the party confessed that he had been on the Thlew-ee-choh when he was a boy; and though, as he had gone by land, he had no exact knowledge of the route by water, still he knew that there was a river about a day's march off, leading to some lakes which would eventually conduct us to it. His only apprehension was, whether the canoe could be conveyed in any manner over the mountains and falls, in our way to the Barren Lands, where we should find the lakes to which he had alluded. "We Indians," said he, "should not think of attempting it, but the white men are strong." On such a subject it was scarcely prudent to hazard an assertion: but as much depends on first impressions, I did not hesitate to assure him, that I had the power to surmount all such obstacles as he had described, and only required an active hunter like himself to accompany me, for which, I added, he should be well remunerated; though, to say the truth, the general appearance off the country, and the increasing altitude of the mountains,

rendered it evident that no common exertion would be required to get to either of the large rivers, and in the decision to which I now finally came, I considered myself as having merely chosen the lesser evil of the two.

Still, coasting along the northern shore, and a continuous link of islands to the right, we came to a place distinguished, by the Chipewyan and Yellow Knife Indians, by the emphatic appellation of "The Mountain." Here it is their custom to leave their canoes when they go to hunt the rein-deer on the Barren Lands; and few have much acquaintance with the country beyond it. Three or four of La Prise's crew, influenced by their old habits, could not bring themselves to pass the rock at which they had always landed; and separated from us here, under the plea of going to join their families. The Mountain rises gradually from the water's edge into round backed ridges of gneiss, with intervening valleys rather scantily wooded; and its various summits, consisting of a succession of mounds or elevations of smooth and naked granite, in the form of obtuse cones, rarely attain a greater height than from ten to fourteen hundred feet. The Mountain River is seen near its base, and precipitates itself, in a picturesque fall, over a ledge of craggy rocks, into the lake. Opposite this is the termination

of the islands beginning at Tal-thel-leh; and a line drawn from thence due south cuts a huge bluff, forming the western angle of Gāh-hountchella, or Rabbit Point. This indented isthmus juts out in a W.N.W. direction from the eastern main, and, overlapping the immense island of Peth-the-nueh, or Owl Island, so as to make the land seem continuous, gives the appearance of a deep bay, of which, together with the island, it seems to be the boundary. In truth, however, the effect so produced is an optical illusion, occasioned by the distance and refraction of the objects; for although the blue outline appears perfectly unbroken, yet Gāh-houn-tchella was subsequently discovered to be the northern opening to a narrow strait leading into a magnificent inner bay, at the south part of which we afterwards established a fishery. Still farther south than the fishery is another narrow passage, hemmed in on the west by the mural precipices of Peth-the-nueh, and on the east by lofty granitic mountains. This forms the outlet to a part of the lake which is bounded by the horizon, the whole space being one sheet of water as far as Point Keith. The southern shore I have ventured to lay down, according to the dotted lines in the chart, after a patient investigation of various Indian accounts, all of which make

its distance from Peth-the-nueh rather more than I have fixed upon. Peth-the-nueh, or Owl Island, is an accumulation of trap mountains, having their least altitude at Pipe-stone Point, opposite Rein-deer Island, and their greatest, at the narrow passage south of Gāh-houn-tchella. Its whole length east and west is fifty-four geographical miles, and the breadth of the lake a little beyond Mountain River, in a line due south, may be fairly estimated at not less than thirty-nine miles. It lies between the two main shores, somewhat nearer to the north: the rivers to the southward and eastward are of some magnitude, and are continually resorted to by the Chipewyans; yet, though acquainted with every rapid and turn in them, they were unable to point out or even afford a guess at their sources. The one, however, with the islands at its entrance, which is laid down as running into Christie's Bay, — so called after Mr. Chief Factor Christie, of the Company's service, whose prompt and courteous services I have pleasure in again alluding to, — is often visited by them in the spring, for the purpose of shooting swans, with which at that season it abounds.

Continuing our course along the hard and rocky line of the northern shore, we passed a picturesque torrent; which, from a thread of

shining silver in the distance, came gamboling down the steep declivities, and then mingled gently with the broad waters of the lake. Near it was the Rocky Point River, just beyond which we encamped, at the close of a beautiful day, in which the thermometer had stood at 52°.

August 18th.—We started at 4 A.M. under the impression that a couple of hours would certainly bring us to the river spoken of by the Indians; but at the spot where we hoped to find a river there was merely another torrent. "That is not it," said Maufelly, the Indian before spoken of, who was to be our guide; so on we went, paddling along the lake, now contracted to a width of five or six miles, and apparently terminating near a blue point in the south-east, which, however, turned out to be the bend leading into a deep bay, forming the eastern portion of Great Slave Lake. As it seemed that a long circuit might be avoided, by making a portage in a favourable part, almost in a direct line before us, I was about to give directions accordingly, when launching past some rocks, which had shut out the land in their direction, we opened suddenly on a small bay, at the bottom of which was seen a splendid fall, upwards of sixty feet high, rushing in two white and misty volumes into the dark gulf below. It was the object of our search — the river which we

were to ascend; so, without noticing the very significant gestures of my crew, indicating the impossibility of ascending it, I immediately landed, and set them about drying and thoroughly repairing the small canoe. An additional blanket or two, with some other requisites, having been set apart, all the other baggage, together with the large canoe, was placed under the charge of La Prise, who undertook to wait for and deliver them to Mr. M'Leod.

The observations to-day gave the latitude 62° 50′ 15″ N., longitude 109° 47′ 54″ W., and variation 36° 52′ E.

Capt.n Back R.N del.t

On Stone by L. Haghe

BEVERLY'S FALLS, MOUTH OF COARFROST RIVER.

Day & Hagh. Lith.rs to the King.

CHAP. IV.

Difficult and toilsome Ascent of Hoar Frost River. — Striking Scenery along its Course. — Illness of the Interpreter. — Encampment upon Cook's Lake. — Ascent of another small River full of Rapids. — Desertion of two Indians. — Perplexity of the Guide as to the proper Course, and Attempt to desert. — Succession of Streams and Lakes. — Indian Account of the The-lew or Teh-lon. — Clinton-Colden, Aylmer, and Sussex Lakes. — Discovery of the Thlew-ee-choh.

A NEW scene now opened upon us. Instead of the gentle paddling across the level lake, by which we had been enabled to penetrate thus far, we had to toil up the steep and rocky bed of an unknown stream, on our way to the high lands, from which the waters take an opposite course. The labours which had been hitherto so cheerfully undergone were little more than those to which *voyageurs* are accustomed; but in what was to come, it was evident that extraordinary efforts and patient perseverance would be required, to overcome the difficulties of our route. We now learned from the Indians that the fall, to which, after my enterprising friend Beverley, the companion of Sir E. Parry

in his attempt to reach the Pole, I have given the name of Beverley's Fall, was the commencement of a series of appalling cascades and rapids, which, according to their account, were the distinguishing characteristics of Hoar Frost River; and, indeed, some fifteen or twenty small canoes, concealed in the bushes, belonging, as was conjectured, to my old friend Akaitcho and his party, who were hunting on the barren Lands, showed pretty clearly the obstacles we might expect to encounter. Maufelly, however, maintained that it was the only practicable route, and added, that by following its channel we should shorten the distance, and not improbably fall in with an old man who could give all the information I required about the Thlew-ee-choh.

The greater part of our lading, consisting of three bags of pemmican, with a little ammunition tobacco, &c., had been carried up the ascent the evening before; and on the morning of the 19th of August, after emptying a net which had been set, of a few blue and white fish, the remainder was taken. The principal difficulty consisted in bearing the canoe over a slippery and uneven acclivity, thickly beset with trees and underwood. The first ridge, where we rested, was formed of sand and débris from the surrounding rocks, mostly red felspar and quartz.

Having crossed a swamp, and again ascended, we got to a point above a second fall, where a little smooth pool, on which the canoe was launched, afforded a short respite to the wearied men. Here I dismissed La Prise, who, with his two little boys, had assisted in conveying the things so far. He was intrusted with a letter for Mr. M^{c}Leod, in which I directed him to begin building an establishment, as soon as he should reach the east end of the lake, which, as I calculated, could not be more than a day's march from the river; informing him at the same time that I might be expected some time in September.

A few hundred yards' paddling along the pool brought us in sight of fresh clouds of spray, rising from a third and a fourth fall, too dangerous to approach; and though the woods were extremely thick, and consisted, for the greater part, of stunted swamp fir, which gave us infinite trouble to force through, still there was no alternative, and clambering over the fallen trees, through rivulets and across swamps, as well as our burthens would permit, we at length emerged into an open space. It was barren and desolate; crag was piled upon crag, to a height of two thousand feet from the base; and the course of the contracted river, now far beneath, was marked by an uninterrupted line of foam. After

frequent halts to recover breath, the summit of the difficult pass was attained; the blue lake which we had left, lay as if spread at our feet; and such was the beauty of the varied outline, that we were captivated into a momentary forgetfulness of our fatigue. But severe toil will tell on the frame, however resolute the will; and the interpreter, who had for several days shown symptoms of indisposition, became now so exhausted as to be barely able to proceed. The Indians aided him by lightening his burthen, being themselves in high spirits, from having seen some fresh tracks of deer, which, according to their notions, indicated an early hunting season, as it proved that those ever shifting animals had begun to migrate from the north. The descent towards the river was at first gradual, for the path lay over the even though rounded surface of the rocks. But moss-covered swamps soon followed, and then a precipice so abrupt and deep, that, with no other incumbrance than my cloak and gun, it required all my vigilance and exertion to save myself from falling with the loose masses which slid away from my feet.

The people with the canoe stood resolutely to their work, and after a slip or fall, recovered themselves with such adroitness, that, after an interval of protracted anxiety, I enjoyed the satisfaction of beholding her placed safe and sound in

Capt.ⁿ Back. R.N. August 19ᵗʰ 1833.

Engraved by E. Finden.

Portage in Hoarfrost River

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the stream below. The course of the river could be traced N.N.E. about three miles, in which, though there was evidently a strong current, nothing appeared to break the glassiness of the surface. It was bounded on each side by steep shelving rocks, cheerful with vegetation, and thinly clad with birch, firs, and willows. The sun was too low, and the crew too wearied to move on; and having paddled to the other side, for the convenience of a level spot on which to pitch the tent, we gladly halted for the night.

The laborious duty which had been thus satisfactorily performed, was rendered doubly severe by the combined attack of myriads of sand-flies and mosquitos, which made our faces stream with blood. There is certainly no form of wretchedness, among those to which the chequered life of a *voyageur* is exposed, at once so great and so humiliating, as the torture inflicted by these puny blood-suckers. To avoid them is impossible: and as for defending himself, though for a time he may go on crushing by thousands, he cannot long maintain the unequal conflict; so that at last, subdued by pain and fatigue, he throws himself in despair with his face to the earth, and, half suffocated in his blanket, groans away a few hours of sleepless rest.

August 20.—The thermometer had fallen to 36°, and at four A.M., as soon as the sunken

rocks, and other impediments to our progress, could be distinguished, we got away, and went on cheerily enough, until interrupted by a rapid, which was succeeded by so many more, that for the best part of the morning we did little else than lighten the canoe and drag it up with a line: at length a fall of twenty feet obliged us to carry both canoe and baggage. This passed, other rapids presented themselves; until finally the canoe got so seriously damaged by the shocks, as to make us hasten on shore to avoid sinking. The unhappy interpreter had been unable to take any share in the work, and was evidently suffering severe pain, which he begged of me to assuage. I had only a box of common pills, and some brandy, neither of which could be prudently applied to a case which seemed to require the skill and attention of a professional man. The poor fellow, however, persisted in his belief that I could relieve him, not doubting that any thing under the name of medicine would answer the purpose. I yielded, therefore, to his importunity, and indulged him, first with the contents of the box, which made him worse; and next with the contents of the bottle, which made him better.

Scarcely was the canoe repaired, and our labour recommenced, when we were involved in fresh troubles, by a most intricate channel of

deep water, thickly studded with sharp angular rocks, sometimes so close together as barely to allow of a passage. The stream having at this part a considerable fall, rushed between or bubbled over them, with a force that almost swept the hauling men off their legs; and no sooner had they with great resolution surmounted this difficulty, than a fresh demand was made on their energy by the appearance of three distinct falls, rising like huge steps to the height of forty-five feet. Again, therefore, the whole *matériel* was to be carried, much to the annoyance of the crew, to whom, on such occasions, the sickness of any of their companions is a matter of serious importance. One or two more rapids, and a narrow fall of twenty feet, terminated the ascent of this turbulent and unfriendly river. Nothing, however, can be more romantically beautiful than the wild scenery of its course. High rocks beetling over the rapids like towers, or rent into the most diversified forms, gay with various coloured mosses, or shaded by overhanging trees — now a tranquil pool, lying like a sheet of silver — now the dash and foam of a cataract, — these are a part only of its picturesque and striking features.

The canoe having been completely repaired, we entered on a different scene. An amphi-

theatre of gently rising hills, interspersed with rounded and barren rocks, and a few clumps of gloomy-looking pines, rendered more conspicuous by the yellow sand on which they grew, embraced a calm sheet of water, which, taking a northerly direction, kept gradually widening to a distance of three or four miles. Some old ice still adhered to its banks, and the snow shoes and bundles affixed to the poles of a recently deserted encampment, showed that it was a resort of the Indians.

It was too late to gain the pines, for the sun had set; so we encamped on an island where we had observed that there were shrubs enough to cook the evening meal; and had no sooner landed than we were assailed by swarms of sand-flies and mosquitos, which for a time irritated us almost to madness. I do not know that there is any thing very original in the idea, but as I contemplated the repose and stillness of the evening landscape, mellowed by the soft tints of the western sky, and contrasted it with the noise, the impetuosity, the intense animation and bustle of the morning, it seemed to me a type of that best period of the life of man, when to the turbulence and energy of youth succeeds the calm sobriety of ripened age. It brought to my mind far distant friends,—one especially long known and well esteemed; in remem-

brance of whom I gave to the sheet of water before me the name of Cook's Lake.

As the night drew on, something was perceived indistinctly on the lake; it was neither a loon, nor a deer, but its cautious motions excited that sort of suspicion which made our invalid look about him. He and the three Indians with me determined that it must be either a Chipewyan thief, or the scout of a party of slave Indians, who were at war with the Yellow Knives. As it turned out, however, neither of these conjectures was correct, for the object of apprehension proved to be one of those who had left us at the mountain, and who, having lost the only two charges of powder in his possession, had been driven to the necessity of performing this long journey, to obtain the means of sustaining his family until they could get to their friends. "Had there been only my wife with me," he said, in a faint voice, "I would not have troubled the chief, for we could have lived upon berries; but when I looked on my child, and heard its cries, my heart failed me, and I sought for relief." There needed no other appeal; and having received a liberal supply of provision and ammunition, the poor fellow went away the happiest of his tribe.

August 21.—Thin ice had been formed during the night; though when we started, at 4 A.M., the thermometer stood at 38°. A few miles

northerly brought us to a river, barred by fifteen rapids, varying in height from three to ten feet. In any other situation, such a succession of interruptions would have seriously annoyed me; but I now regarded them with complacency, as the ladder by which I was to mount to the dividing ridge of land, — the attainment of that goal being all which at that late season I could hope to accomplish.

I had in De Charloît, the bowman, one of the most expert men in the country, and in no place had his astonishing strength and activity been called more into play than on this occasion. In the midst of dangers the most imminent from rapids or falls, he was cool, fearless, and collected; and often, when the pole or paddle was no longer available, he would spring into the curling water, and, with a foot firmly planted, maintain his position, where others would have been swept away in an instant. But in spite of all his care and exertion, our frail vessel was sorely buffeted, and the bark hung in shreds along its sides, ripped and broken in every quarter. We were, therefore, not a little glad, when, after a difficult portage, we found another free and open water.

While the necessary patching and gumming of the canoe was going on, to render her tight, I climbed to the top of a short range of rocks about two hundred feet high, and dipping to the

eastward. From this elevation Maufelly pointed to a lake, on which he said we were to go a long way; adding, however, that, from the fact of his having been so snow-blind when he last passed as to be led with a string, he did not exactly remember the channel. He requested, therefore, permission to land at certain elevated places—one of which he recognised, and pointed out as the spot where he had formerly killed a deer. Still this did not enlighten him as to the precise part we should make for: and whether the two Indian boys in the canoe differed with or distrusted him, or whether it was the mere caprice and unsteadiness of their nature, we knew not; but certain it was, that, on landing at a point of the shore, they began to prepare for a march, with the intention, as they said, of visiting their relations, who they thought might be somewhere to the north-west. As there was no indication of Indians within range of the telescope, we tried to dissuade them from their purpose, for their services, just then, were doubly requisite in order to carry the baggage over the portages; and this the rogues well knew, but with invincible stubbornness they rejected every offer that was made. Finding they were determined, I supplied them with a little ammunition, warning them at the same time to keep away from my fort, unless they brought with them a heavy load of good meat.

We then paddled among islands extending to a great distance, with an uninterrupted horizon to the westward. It was evident that Maufelly was puzzled; for though he knew the general direction, he was so little acquainted with the form of the lake, that we constantly found ourselves either in a bay, or pulling round an island. Not liking to be baffled in this way, I landed, and sent De Charloît and the Indian to reconnoitre; and the result was, that they descried a lake in the line of our intended course. The mosquitos here tormented us dreadfully; and the steersman, for whom they had a particular affection, was so swollen that he could scarcely see.

At daybreak of the following day (the 22d of August) we went to an adjoining bay, whence the canoe and baggage were carried to two small lakes. Another portage took us to an extensive sheet of water, which, however, proved to be only a branch of the lake we had left. In this, as in the other part, were many islands, composed of low rocks with shelving sides, covered more or less with reindeer-moss and large stones. Streaks of old ice were still adhering to the shore; and on some of the hills, already of a brown tint, were patches of last year's snow. A few hours brought us to the end of the lake (which has been called after the Rev. Dr. Walmsley of Hanwell); and scouts were

despatched in different quarters to find out the most favourable route to the large lake of which we were in search.

A set of observations gave the latitude 63° 23′ 46″ N., longitude 108° 8′ 16″ W., and variation 36° 0′ E.—a position a little to the north of the Cheesadawd Lake of Hearne; though, from the concurrent testimony of the Indians, it would seem that the only one bearing the name is situated between the Athabasca and Great Slave Lakes.

Towards evening the men returned; and about the same time, one of the Indian lads, who for some trifling cause had separated from his companion, and was now willing to join us again. The former had succeeded in finding a chain of small lakes, inclining to the eastward, and had the good fortune to shoot a young deer: the latter was unceremoniously dismissed with directions to inform his tribe, that those who were desirous of profiting by the expedition must pursue a steady and honest course of conduct, and, according to their own phraseology, abstain from "speaking with two tongues;" for by that means alone could they entitle themselves to any benefit. He was refused even a particle of provision,—a rigour which I felt assured would be made known, and produce a wholesome effect upon the whole tribe; for, though fickle and un-

grateful, they are yet right-minded enough to know, and candid enough to acknowledge, their errors. In the present instance, the lad smiled as he went away, and observed, that "it was just, for he did not deserve better treatment."

August 23. — The operation of carrying began with the first dawn of day; and, though tormented by the mosquitos from the time that the sun began to have any power, and drenched with hail and rain as soon as it declined, yet we managed to get over fifteen portages before night compelled us to encamp.

August 24. — The thermometer fell to 32°, and a cold sheet of vapour rose from innumerable watercourses, which dispersing as the sun appeared above the grey cloud that walled the horizon in the east, allowed us to resume our tedious occupation. A succession of lakes and portages took us to a small stream, which I was glad to observe ran easterly; and at its termination, in an open space of water, I saw some sand hills about north-west, which led me to conclude that we could not be far off the height of land. The bark of the canoe, however, had been split by the frost, and a short delay was necessary to repair it. This completed, we began to make a traverse to gain some hills, whose eastern sides, as Maufelly asserted, were washed by the large lake; but a question now arose, as to the pro-

bability of a passage along the base of the sand hills to the westward; since, according to my sight, a wide opening seemed to stretch from thence far to the right, which, I cannot help still thinking, was connected with the other large sheet of water. Be this as it may, the Indian put his veto on the proposition; and accordingly the blue hills were reached, a long portage made, and I had the satisfaction at last of looking on a wide clear expanse of water to the southward, bounded only by the horizon. — The latitude was 63° 23′ 57″ N.

We now crossed to a jutting bluff point, apparently a continuation of the opposite shore, but which was stated to be the northern sweep of a bay, the receptacle of a rapid river, which Maufelly said we must ascend. It lay precisely in a straight line with a very distant column of smoke, to which our Indian wished to go, under the plausible pretence of procuring information; declaring, at the same time, his entire ignorance of any water communication beyond the one we were in. This conduct I thought it right to resent, and with a seasonable severity of manner gave him to understand that artifice and duplicity were not likely to succeed with me at any time, much less at the present moment, when, from his own admission, he had been at another lake, and stood convicted therefore of

falsehood. I told him, that what he really wanted was to desert; that if so, his lands were before him; but that by so doing he would forfeit all claim to whatever benefits I might otherwise have conferred upon him. The effect was instantaneous; he confessed that he had done wrong, and promised fidelity for the future, begging that I would not be displeased, if, from want of memory on his part, we sometimes missed our way; for that it was a long time since he was a boy, and from that early period he had never been beyond the land before us. The banks of the stream consisted mostly of sand, heaped here and there into mounds, the comfortable retreat of many siffleu, or ground squirrels, some of whose company were basking in the sun, or sitting up in curious gaze at each other: on seeing us, they disappeared.

Four rapids, having an aggregate fall of from sixteen to twenty feet, were the only obstacles to the navigation of the river, and by five o'clock we had got up them all, and opened on a magnificent lake. Close by, a reindeer appeared, running at full speed, chased by a long white wolf, which, though it seemed to have little chance in swiftness, was nevertheless resolute in the pursuit. The deer gradually made for a pass below the rapid, at the other side of which

another wolf was now first perceived, crouching down, with his eyes fixed on the chase, and evidently ready to spring upon the poor animal, if it unhappily took the water.

I have a strong antipathy to wolves, however speciously attired; and though these fair-robed gentlemen were but following a natural instinct of appetite, I thought fit to interfere with voice and gesture. The panting deer bounded past me, as if conscious of safety and protection, while the wolf stood motionless for a moment, and then, scenting an enemy, slunk slowly away, under the shelter of some fragments of rocks.

The country near the margin, and, indeed, for several miles from the lake, was very low and level, being only occasionally elevated into moderately-sized hills. By one of these, to the eastward, lay the route to the The-lew.* As we were certain to return by this place, I took advantage of a detached heap of stones, in the shape of an island, to make a *cache* of a bag of pemmican; soon after which we encamped, where there was some good moss for cooking—a consideration of no trifling importance on the barren lands.

The white partridges kept up a burring call until near midnight; and when this had ceased,

* Sometimes called Teh-lon.

my rest was repeatedly interrupted by the startling and fiendish screams of a score of the largest sized loons; so that I was not sorry when the morning of the 25th of August afforded light enough for escaping from their harsh and grating notes.

As we proceeded, the land on each side swelled insensibly into a different character, attaining an elevation of one hundred and seventy or one hundred and ninety feet, with rounded summits, partially covered with rich lichens, and strewed with huge boulders, closely resembling those round Point Lake. The valleys afforded a luxurious pasturage, and were tenanted by a few scattered deer.

A weak current was found to oppose us; and having passed through a narrow, which produced a ripple having something of the character of a rapid, we managed to get embayed. Maufelly was fairly lost; and after trying ineffectually half a dozen openings, I returned to the current, which became imperceptible as the land fell off; but, taking the general direction of the last river and this stream as a guide, I directed the course to a distant northerly hill, which, luckily enough, happened to be the western point of another narrow, well known to the Yellow Knives as a favourite deer-pass, and which was, in fact, the only passage for the water. A "band*" of deer was

* Any number above six.

swimming across at the moment. The face of the country was extremely barren and forbidding. When afterwards we encamped, not a shrub could be found; and the moss being wet, it required some ingenuity to make a fire: ultimately, however, it was effected, by building two parallel walls, within which the moss was placed, and fanned into flame by the draft rushing between. This simple notion was the means of saving us much trouble afterwards. The pass led us to an immense lake, from which land could be faintly distinguished to the north, while east and west it was indented with deep inlets and bays. One of these, to the right, presenting a clear horizon, led, as Maufelly believed, to the Thē-lew.

Subsequently, several Indians, who had been there, informed me that, by making a portage from the eastern extremity of a deep bay, they got to a small lake, and from thence by another portage to a larger one; that this discharged itself by a river into the north-east end of a very long but narrow lake, the southern termination of which was about half way between that point and Slave Lake. To the east, they said it was connected, by a short line of rapids, with a lake of singular shape, which, by means of a river seventeen miles long, communicated with the Thē-lew, at a mean distance from our position

of about eighty miles. As to the course of the principal river itself, little seemed to be accurately known; for the Indians never penetrated far, perhaps not more than twenty miles, beyond the part which has been just described. There it was said to maintain a uniform direction towards the north-east.

Proceeding by the western shore of the lake which we had entered, we cut across from point to point, coasting by islands so extensive, that we not unfrequently mistook them for the main. The water was of a dark indigo colour, but very clear; and the occasional and almost noiseless rising of a fish at a water-fly was the only sound which broke the stillness and serenity around. Whether it were owing to continued calms, or to the limited time during which this lake is liberated from its icy fetters, I am not prepared to say; but certain it is, that I no where observed those successive banks, or layers of sand, along the beach, so common in the lakes to the southward, —the joint effect of the action of the waves and of the rise and fall of the water. Neither were there any of those horizontal lines on the base of the rocks, which force themselves on the notice of the traveller in other parts of this country, and which indicate, with the nicest precision, the fluctuations of the level at different seasons. Being somewhat bewildered among the nu-

merous bays and islands, our Indian, from time to time, ascended the elevated ground, with a view of guessing at the best route; and on this occasion he considered that, to avoid making detours, equally unprofitable and vexatious, we ought to keep more to the northward. He began now also to remark that many winters had glided away since he had visited the Thlew-ee-choh, as a boy, with his old father; but that he remembered his saying that there were numerous sand-hills in its vicinity; and he felt some confidence now, that we should, sooner or later, find it. What most comforted him, however, was a newly entertained idea that we should not (as he had hitherto dreaded) be caught by the setting in of winter, before the object was accomplished.

For a considerable time past, a dazzling whiteness, which did not seem like the ordinary effect of the sunlight, had been visible on the western horizon; and, as we neared it, I had the mortification to behold a well-defined stream of ice, decayed, indeed, but compact enough to have brought up the largest ship in his Majesty's navy. There needed no stronger proof to convince me of the tardy disruption of this wintry barrier, and, by consequence, of the faint chance that existed of my being able to prosecute the journey by open water during the early part of summer. The

intimation, however, was not without its use; it prepared me to expect other obstacles, and occasioned the methodising of various plans, by which the execution of that part of the service was at last successfully completed.

Having paddled along the edge of the stream of ice, we made for a remarkable mountainous bluff to the north-east, between which and some other high land was a passage leading north. But the sun had set; and, after a hard day's work, my weary crew were happy to encamp, notwithstanding the vigorous and unintermitting assaults of our faithful tormentors, the sand-flies and mosquitos. Certainly they were pests, and sharply did they convey to us the moral lesson of man's helplessness; since, with all our boasted strength and skill, we were unable to repel these feeble atoms of the creation.

August 26th.—The temperature had fallen to 31°, and coated the lake, for a few hundred yards from the shore, with a thin sheet of ice; while the calm surface of the open water was literally black with dead flies. Slight as the impediment was, it required the utmost caution on the part of the bowman to open a lane, by breaking the ice on each side, so as to allow the canoe to pass without touching; for the bark being rendered brittle by the overnight's frost, the least concussion would have produced serious con-

sequences — to prevent which, pieces of leather, &c., were placed over the sides as fenders. The mountainous appearance of the country to the northward by no means answered to the character of the part of which we were in search, and greatly diminished the hopes that Maufelly had nourished of finding a portage to the Thlew-ee-choh in that direction. We therefore veered to the westward; and, after paddling from fifteen to twenty miles, without descrying the faintest symptom of a sand-hill, we ascended a lofty hill, and, after considerable embarrassment, during which I was careful to encourage him, the Indian pointed to the south-east. Arriving at another point, he again directed us west, through a kind of strait, where there was an island, consisting of one conical mount, about two hundred feet high. Some sand was visible round and near its apex, and it was distinguished, as I afterwards learnt, by the name of the Sand-Hill.

From its summit we were surprised to behold another immense lake, extending with a clear horizon to the south-west, and abounding in large islands, and in bays from ten to fifteen miles deep. How far it might be across, could not be conjectured, the apparent boundary on the other side being but dimly marked by narrow dark lines, which the Indian assured me were only islands. Resuming our journey, we passed

through the upper end of the strait, in which the current set to the southward; and, having gone half round the compass, and passed an extensive opening to the right, we directed our course to the westward.

The wavering uncertainty of Maufelly induced me to abstain from any remarks on the time lost in rounding bays to look for some near cut, which he had never seen, but which he persisted in thinking must exist. Any opposition, I well knew, would only produce a sulky obstinacy, and put an end to all effective cooperation. I therefore left him to follow his own plans, confiding in that instinct which will guide an Indian through the mazes of the darkest and most tangled forest. The view to the southward and westward might well be called that of an inland sea; for, with the exception of a dark spot here and there, the range was bounded by an horizon of sky and water, now gilded with the brilliant rays of a setting sun.

Holding more to the north, we threaded some bleak and picturesque islands, apparently of gneiss; for all were round and naked rocks, with little or no vegetation, and rose abruptly from the water's edge to a height varying from eighty to a hundred and twenty feet. Near the spot where we encamped was one considerably higher, with huge boulders on its obtuse and irregular

outline, which bore an exact resemblance to the scenery about Fort Enterprise.

The shelving and moss-covered mainland, with isolated rocks *in situ*, formed a pleasing contrast to the bold fronting of the neighbouring islands. The beach where the tent was pitched was of a shingly gravel, composed of minute and rounded fragments of mica slate, quartz with scales of glittering mica, and red and grey felspar. A few geese, one gull, and many loons were seen; and mosquitos, like the fourth plague *, swarmed innumerable, and banished comfort. When the cool air of night had benumbed them, and afforded me a respite for contemplation, I could not help feeling deeply impressed with the intense stillness of the scene: no living thing was seen or heard; the air was calm, the lake unruffled: it seemed as if nature had fallen into a trance, for all was silent and motionless as death.

Our little canoe was afloat at four A.M. of the 27th of August; and the men, excited by the keen air of the morning to vigorous action, impelled her through the calm water with unusual swiftness. Several deep bays were traversed and points rounded, until at last we had the satisfaction of seeing some sand-hills, which, as we drew near, Maufelly thought he recognised.

* Swarms of flies. — Exodus.

Twice he went to adjacent heights to discover some object, which might remove his doubts; and the second time he returned with a light step, and a countenance betokening satisfaction and triumph. With renewed confidence he pointed to a bay from whence we might go to the Thlew-ee-choh, and, on our landing, turned to the interpreter, and showing him the well-beaten tracks of the deer, exclaimed, with a smile, that his old father loved to dwell on the feats he had performed there; "and though," added he, "I was but a child when I accompanied him, these places look familiar to me."

The two large lakes by which we had come were only separated by the strait of the Sand-Hill; and, considering the first as extending from that strait, not to the river, but merely to the first narrow to the south, it will embrace a direct distance of twenty-nine miles, and an estimated breadth, east and west, of nearly thirty. This I have named Clinton-Colden Lake, as a mark of respect to the memory of those distinguished individuals.

The second, or northern one, is, according to the concurrent testimony of the Indians, about sixty miles in extent towards the north-west, with a breadth not exceeding thirty, nor less than twenty miles. The eastern shores are broken into bays, deep and indefinable; the rest was

bounded by the horizon. This splendid sheet of water received the appellation of Lake Aylmer, in honour of the Governor-General of Canada, to whose kindness and consideration I felt myself particularly indebted.

While employed in putting the canoe in a suitable place, between two small hillocks, to dry, a deer was seen coming at full speed towards us. The Indian and De Charlôit started at the same moment to cut it off. The trial was well contested; but the latter was more active than his opponent; and, concealing himself behind a stone, watched his opportunity, and killed it at the first shot. After making a hasty repast, I sent the three men with Maufelly to look for the river, or the lake whence it was supposed to take its rise. They were provisioned for three days; and, in the event of any doubt arising on the part of the Indian, the bow and steersmen were to proceed in a due northern, and the Indian and interpreter in a north-western, direction, which, I concluded, would take them within sight of their object.

The observations made here gave the latitude 64° 24′ 13″ N.; longitude, 108° 28′ 53″ W.; variation, 36° 36′ E.* As the sun declined, some dark clouds rose from the westward, and

* For dip, see Appendix.

spread rapidly over the sky, threatening to break up the long calm which we had enjoyed across the two lakes. Before I could reach the tent, indeed, the storm burst with such violence, as almost to carry it away; and but for the support which, on my arrival, I lent to the poles, it would assuredly have gone. The canoe was whirled over and over, and was at last arrested by a rock. Malley's cooking apparatus was thrown right and left; while my sextant and instruments, scattered about the tent, reminded me most forcibly of poor Hearne's misfortune on a similar occasion. Happily, I saved them by throwing my cloak over them, and then again propped up the tent, until the squall was over.

August 28th.—I went along a range of sand-hills with my glass, but could see nothing of the men. The country was formed of gently undulating hills, whose surfaces were covered with large fragments of rocks, and a coarse gravelly soil, which afforded nutriment to some miserable dwarf birch. The tea plant, crow, and cranberry shrubs also grew there, but were entirely unproductive. In the swamps, occupying every valley, the plant of the whortleberry was occasionally found, but, as in the former case, without fruit.

A chain of sand-hills, embracing two thirds of a small lake with a pretty rocky island in its

centre, stretched from the eastward, and, gradually rising to different heights, suddenly terminated in abrupt cliffs; whence renewing the line again at the base, it extended to within a couple of miles of our encampment. Thence, separated only by a narrow stream which flowed from the lake, the land ascended by a shelving hill to a continuation of the chain; a tongue of white sand spotted with Arbutus (sac à commis*), which jutted out to the southward, completed, with the hill on which we had taken our position, the girdle of a bay, the waters of which emptied themselves by a narrow channel to the north-west. To the north, as well as west, were other hills, detached from the chain, of a rocky mossy character about the declivities, but ending in rounded cones of sand, from one hundred and fifty to five or six hundred feet high. Many ravines and dry watercourses intersected the hills; and in one I saw a musk ox, which contrived to get away from me. The deer must have been, at some time, exceedingly numerous; for the face of the ground for several miles was beaten down by them.

August 29th.—Becoming anxious about the men, I took my gun, and, following a N. N.W. direction, went out to look for them. Having passed a small sheet of water, between the

* So called by the traders.

rivulet, or channel, previously mentioned, and Lake Aylmer, I ascended a hill, from the top of which I discerned, to my great delight, a rapid, evidently connected with the stream which flowed through the narrow channel from the lake. With a quickened step I proceeded to trace its course, and, in doing so, was further gratified at being obliged to wade through the sedgy waters of springs. Crossing two rivulets, whose lively ripples ran due north into the rapid, the thought occurred to me, that these feeders might be tributaries to the Thlew-ee-choh; and, yielding to that pleasing emotion, which discoverers, in the first bound of their transport, may be pardoned for indulging, I threw myself down on the bank, and drank a hearty draught of the limpid water. From a height a mile forward, the line of stream could be distinctly traced into an open space, which, as it contracted, inclined to the north; and this, with the appearance of two plovers, exactly resembling the noisy plover (*Charadrius vociferus*) about Fort Enterprise, convinced me that I stood on part of the continuous height of land which extends hither from the borders of the Copper Mine River. The men not making their appearance, I raised a dense smoke, by firing the moss, to apprise them of my situation; and returned to the tent, passing, on my way, a white wolf, which was sneaking towards a deer. A smoke

Capt.ⁿ Back R.N del.ᵗ August 28ᵗʰ 1833

seen to rise from behind the sand-hills anounced, shortly afterwards, the approach of the men; and at a late hour, the Indian first, and afterwards the others, came in. De Charlôit groaned under the weight of a musk-ox's head and horns, while his companions were more usefully laden with the spoils of some good fat deer.

They had fallen on the river the second day, and described it as being large enough for boats. Returning along its banks by a wide lake, and two tributary streams as large as itself, they ascertained that it was really the same stream, the source of which I had thus accidentally discovered in the Sand-hill Lake close to us; which was now distinguished by the name of Sussex Lake, after His Royal Highness the Vice-Patron of the expedition. I had reserved a little grog for this occasion, and need hardly say with what cheerfulness it was shared among the crew, whose welcome tidings had verified the notion of Dr. Richardson and myself, and thus placed beyond doubt the existence of the Thlew-ee-choh.

CHAP. V.

Digression concerning Hearne's Route.

The route of the celebrated Hearne intersected the country which has been just described; and there is no person interested in geographical research who will not thank me for interrupting for a moment the course of my narrative, in order to introduce the following observations on that traveller's geographical discoveries, for which I am indebted to Dr. Richardson.

"The adventurous journey of Hearne excited very great public interest at the time it was made, and will always form an epoch in the annals of northern discovery; for it gave the first authentic information of a sea bounding America to the northward, and also overthrew the numerous vague reports that existed of straits connecting the Atlantic and Pacific in parallels south of that to which he attained. Indeed, the high latitude assigned to the mouth of the Copper Mine River was so adverse to the opinions previously entertained by the advocates for the prosecution of a north-west passage, that Dalrymple was induced closely to examine the courses and distances recorded in Hearne's

Journal, whereby he discovered so great a discrepancy between the outward and homeward journeys as caused him to reject the higher latitudes altogether, or greatly to reduce them; and, in doing so, he was undoubtedly right, though Hearne complains bitterly in his preface of the injustice done to him. The fact is, that, when we consider the hardships which Hearne had to endure, the difficult circumstances in which he was frequently placed, the utter insufficiency of his old and cumbrous Elton's quadrant as an instrument for ascertaining the latitude, particularly in the winter, with a low meridian sun, and a refraction of the atmosphere greatly beyond what it was supposed to be by the best observers of the period, and the want of any means of estimating the longitude, except by dead reckoning; this reckoning requiring an exact appreciation of distances, as well as correct courses, circumstances evidently unattainable by one accompanying an Indian horde in a devious march through a wooded and mountainous country; we shall not be inclined to view with severity the errors committed, but rather to think that the traveller's credit would have been strengthened and not impaired by his acknowledging the uncertainty of the position of the places most distant from Churchill. Unfortunately, however, Hearne himself thought dif-

ferently; and in his published narrative, which did not appear until twenty years after the completion of his journey, he attempts to establish the correctness of his latitudes by various unfounded assertions; one of which it will be sufficient to notice here. He states that on the 21st of July, 'though the sun's declination was then but 21°, yet it was certainly *some height above the horizon at midnight*, at the mouth of the Coppermine River.' Now it so happens, that Sir John Franklin encamped at that very place on the 19th of the same month, when the sun set at '*thirty minutes after eleven apparent time.*' Dalrymple had also remarked, that Hearne subsequent to his celebrated journey committed a great error in estimating the distance to Cumberland House, and therefore questioned his general correctness; and this conclusion is parried only by Hearne's giving up his longitudes as not being corrected by observation, but continuing to support the truth of his latitudes. We shall, however, show, that his error in these was still greater than in his longitudes; his observations, if any were actually made, having miserably deceived him. But we should greatly mistake, if the detection of various instances of disingenuousness led us to consider him as entirely unworthy of credit, and to deny the reality of his journey. We had an opportunity, on Sir John Franklin's first expedition, of convers-

ing with several old men who had belonged to the party of Copper Indians, that met Hearne at Congecathewachaga. The leading facts of his journey are still current subjects of tradition among that tribe, as well as with the Northern Indians; and from all that we have been able to collect in the fur countries, as well as from an attentive examination of his narrative, we are led to conclude that he visited the various places marked in his map, in the order in which they stand; that all the rivers and lakes which he names actually exist; and that he has correctly described the general physical features of the country he traversed. His description of the lower part of the Coppermine River, in particular, is evidently that of one who had been on the spot. Hearne's original journal was very meagre, but, in common with all the residents in the fur countries, he seems to have had an excellent memory, and to have trusted much to it. By its aid, accordingly, and with the co-operation of Dr. Douglass, who edited his work, he has given an exceedingly interesting account of his travels and sufferings, together with very correct and important details of the habits of the various animals he was acquainted with. His printed work does not, however, quote his courses and distances so fully as his original journal (a copy of which we saw at Hudson's Bay); the ani-

madversions of Dalrymple having apparently caused him to leave several important gaps in the enumeration of his daily journies both outward and homeward.

" It is a matter of some consequence in the geographical delineation of the country, to obtain the true route followed by Hearne; and notwithstanding the difficulties in the way of doing so, originating in the above-mentioned causes, Sir John Franklin's first journey supplies us with data for the correction of part of his course, and Captain Back's researches enable us to bring another portion nearer to the truth. From the former we obtain the correct position of the mouth of the Coppermine River, of Congecathewachaga, of Point Lake, and of the mouth of Slave River, by which we can readily ascertain all the western part of Hearne's route, the principal errors of which are shown by the following table : —

	Coppermine River.		*Congecathewachaga.*	
	Lat.	Long.	Lat.	Long.
Hearne -	71° 55′	120° 30′	68° 46′	118° 15′
Franklin -	67° 48′	115° 37′	66° 14′	111° 26′
	4° 07′	4° 53′	2° 32′	6° 49′

	Point Lake.		*Slave River.*	
	Lat.	Long.	Lat.	Long.
Hearne -	65° 45′	119° 00′	60° 48′	123° 55′
Franklin -	65° 00′	112° 16′	61° 30′	113° 24′
	0° 45′	6° 44′	0° 42′	10° 31

"It will be at once perceived, that while Hearne's latitude is too great at his most northern point, by upwards of four degrees, it is too little by three quarters of a degree at Slave River; and there is also a great error in the course, for the mouth of the Slave River is actually two degrees to the eastward of that of the Coppermine, and not to the westward, as laid down in Hearne's map. This appears to have originated principally in his not having attended to the variation of the magnetic needle; though at the date of his journey it must have exceeded two points easterly on the Coppermine; and to give the correct course and distance between the latter place and Congecathewachaga, that amount of variation is required to be applied to Hearne's courses, while his distances are diminished to one half. A large reduction of the length of his marches, though not always quite to this extent, must be made during his whole journey. When travelling with the Indians, their wives and children, during the winter, and when it was necessary to hunt for subsistence, he averages the daily distances made good at ten, and even fourteen, or twenty miles. Now in our journies with the Indians, under similar circumstances, we found that they seldom moved the camp above six miles in one day, more frequently travelling only four, and

scarcely ever exceeding eight, excluding the windings of the route. The power of estimating the distance walked over can be acquired only by practice, in conjunction with the daily correction of errors by celestial observations,—allowance being, of course, made for the easy or difficult nature of the country; but Hearne, as we have seen, was deprived of every means of correction; and having once started with an inaccurate notion of the length of a mile, he carried the error with him to the end of his journey. In correcting his map, therefore, it is necessary to diminish the size of the lakes in an equal, if not in a greater degree than the distances. Upon these principles we have ventured to fix the following points of Hearne's route, taking, for convenience, his homeward one.

"He appears to have fallen on the Coppermine River first at the Sandstone rapids of Franklin, and to have traced it to Bloody Fall; but, as contrary to his usual practice, he underrates the distance from thence to the coast, we are led to conclude that he did not actually go down to the sea, but was content to view it from the top of the hill which overhangs the falls; and, indeed, it is not very probable that he could have induced the Indians, over whom he had little influence, to accompany him on his survey, after they had completed the massacre which was the

object of their long and laborious journey; nor, had he gone actually to the mouth of the river, would he have mentioned marks of a tide fourteen feet high.

"Buffalo or Musk-ox Lake, which he passed in going and returning, ought to be known by the latter name exclusively, as it is not frequented by the buffalo or bison. Cogead Lake is the Cont-woy-to, or Rum Lake, of Franklin; and its waters, agreeably to Indian information obtained by Captain Back, flow by Congecathewachaga into the Thlew-ee-choh; in which case, the Anatessy, or Cree River, as it is named by Franklin, is from its size to be considered as the main branch of the Thlew-ee-choh. The true distance from Congecathewachaga to Point Lake is 78 miles, though by Hearne's map it is 150. At one time, we were inclined to doubt the identity of Franklin's Point Lake with the one so named by Hearne, but we now consider them to be the same; and, indeed, the small scrubby woods, which Hearne mentions as existing on its banks, were seen by us, this being an advantage possessed, perhaps, by no other lake so far to the eastward, and in so high a latitude. Thaye-chuck-gyed, or large Whitestone Lake lies a short way to the northward of Point Lake, and its waters most probably fall into that arm of Point Lake which Franklin's party crossed on

the 23d of September, 1821. No-name Lake is evidently Providence Lake of Franklin. Hearne crossed Slave Lake by the usual Indian route, through the Reindeer Islands to Stony Point, and the Rivière à Jean, a branch of Slave River; but his map is inaccurate here, and does not agree with his text. The next place, whose position it is very desirable to ascertain, is Thelew-ey-aze-yeth, or Little Fish Hill; and we may be assisted in doing this by our knowledge of three fixed points, viz. the mouth of Slave River, the edge of the woods to the northward, and Churchill Fort. The northern termination of the woods inclines from the east side of Great Bear Lake considerably to the southward, as it runs to the eastward, passing Fort Enterprise in $64\frac{1}{2}°$, Artillery Lake in $63\frac{1}{4}°$, and continuing nearly in the same direction until it approaches Hudson's Bay. Hearne makes it 63° 45′ in the longitude he assigns to Thelew-ey-aze-yeth, but we shall not probably be far from the truth, if we consider it as in $63\frac{1}{4}°$. Now if we reduce the distance of one hundred and fifty miles, at which he places Thelew-ey-aze-yeth south of the barren grounds, to between eighty and ninety miles, and allow 27° of variation on his route, we obtain 61° 55′ for the latitude of that place, which is forty miles north of the position he assigns to it on his

map.* By a proportionate reduction of the distance between Slave River and Thelew-ey-aze-yeth, and from the latter to Churchill, we fix the required longitude at 106°. The position of Thelew-ey-aze-yeth is important as forming the junction of three branches of Hearne's route; and if we have correctly established it, that traveller must have passed over or near Artillery Lake in his journey northwards, which is probably his Pee-shew, or Cat Lake. The Thlew-ee-choh, which he crossed about midway between that lake and Congecathewachaga, is evidently not the branch of that river which originates in Sussex Lake, but a stream which flows in from the northward, most likely into the Anatessy branch.

"The course of Thelew-ey-aze, or Little Fish River, is a matter of considerable interest, but we can derive no positive information respecting its débouchure from Hearne's map. If he calculated his distances on the same scale in his first journey as he did afterwards, which is likely, even though he had the assistance of a better instrument on that occasion, the chain of lakes which he lays down as far to the northward as Chesterfield's Inlet, will reach but little beyond Knap's Bay, and the nature of the country can

* As this reduction applies only to one of the branches of Hearne's route, it would be safer for the present to let this place keep the latitude he gives to it, viz. 61° 15′ N.

be considered as known only up to that parallel. He indicates a Little Fish River as existing at no great distance from Hudson's Bay, and says that it is three quarters of a mile wide, which as he estimates distances may be about five hundred and seventy yards; but it can scarcely be the river of the same name that originates so far to the westward. If the latter issues in Chesterfield inlet, it may hereafter afford a very desirable route to Great Slave Lake. Its origin is at no great distance from the Lake of the Hills, as the traders travel to it from the establishment at the Fond du Lac in four days. It is known to them by the names of Rivière Noire and Thlewndiaza.

" In conclusion we would remark, that the names given by Hearne to the various lakes which he saw are derived sometimes from the Cree language, at other times from the northern Indian; and that his mode of writing the latter is different from that which we found to be best adapted to the pronunciation of the Copper Indians. He spells the term for lake *whoie*, while it is written *to* in Captain Franklin's narrative; and the epithet translated 'great' is spelt *chuck*, whereas to us it sounded more like *cho* or *choh*. There are likewise some evident mistakes in the names, and English is occasionally employed in the text, while the map gives only

Indian, or *vice versâ*. An instance of error originating in this practice occurs in Hearne's book, which shows that the author was not always at the editor's elbow. In page 102. Peeshew Lake is supposed to be the same with Partridge Lake. Now *Peeshew* is the Cree name for a lynx or cat, and the lake in question is accordingly marked on the map as Cat Lake, being, as we suppose, the same with Captain Back's Artillery Lake. Thoy-noy-kyed Lake, which Hearne draws correctly enough in his original map, as discharging its waters into Slave Lake, is the Lakes Aylmer and Clinton-Colden of Captain Back. Thă-nă-koie, as the latter writes it, means "Sand-hill Mount," and is the name given to the narrows between these two lakes. Hearne places this spot a degree and a half too far north, and seven degrees and a half too far west."

CHAP. VI.

Continue our Progress. — Rocks on the Thlew-ee-choh. — Island of singular Appearance. — Musk-Ox Lake. — Conjectures on the Course of the Thlew-ee-choh. — Icy River. — Appearance of two Indians. — Maufelly permitted to visit his Wife. — Consummate skill of De Charlôit. — Dwarf Pines. — Story of the Rat and the Beaver. — Unfitness of the Trees for Planks. — Artillery Lake. — Force of the Rapids. — Accident in our Passage. — Leave the Ah-hel-dessy. — A Bear killed. — Ridiculous Story. — March resumed. — Desolate Scenery. — A Deer shot. — Tormented by Sand-flies. — Anecdote of Sir John Franklin. — Meeting with Mr. M'Leod, by an unexpected Route.

August 30. — Squalls and heavy rain prevailed most part of the night; and the morning was so extremely foggy and raw, that nothing could be done towards repairing the canoe, which, to my regret, was found to be much more damaged than I had supposed. Three or four hundred deer came within half shot, but soon disappeared on discovering their mistake. Almost immediately afterwards a flock of geese flew close past, on their way to the south; which circumstance Maufelly considered to be an indication of the breaking up of the season.

At noon the weather cleared, the canoe was put in order, and having made a *cache* of the spare baggage, we began to move to the river. The portage from Lake Aylmer is short of a mile, and in that space intervenes the small sheet of water already referred to. The actual height of the dividing land is consequently not more than *two feet*. We pursued exactly my route of the previous day, and soon came to another lake, at the north-eastern extremity of which the sand-hills dipped into the water. A crooked rapid, beset with large stones, impeded us so much, that it was 9 P. M. before we encamped. Many deer and grayling were seen. The country became more broken into hills, some of which exposed inconsiderable masses of rocks, while the debris thickly strewn over every part of the vallies formed the bed of numerous ponds and water-courses, now dry. A portion of rock having a more compact form, broke ground near the river, and though not extending more than thirty yards to the eastward, terminated in cliffs of twelve feet high. These were the first rocks on the Thlew-ee-choh, and were principally gneiss.

The thermometer was 33° when we set out at 4 A. M. of the 31st of August, and followed a small lake until it ended in a rapid; so choked by immense boulders that small as the canoe

was, a passage could not be effected without lifting her between the shelving pieces; though, if a man slipped, there was quite water enough in many places to carry him under. The rough handling, added to the cold nights, had rendered the canoe so crazy, that the mere action of paddling now damaged her, and a third of one day was lost in making her tight.

The stream again widened into what might be called a lake, and received the waters of Icy River from the westward, as well as those of another river from the eastward. The banks of the first were still cased in ponderous ice far up the valley, and the confluence was marked by a sort of curved surface, in the form of a low arch, from side to side, under which the water rushed in a yeasty current with a deep and rumbling noise. Some islands were passed, and one of the least had a singularly white appearance, which was caused, as I afterwards found, by large, round, light-coloured stones, which formed its cone-shaped sides. Situated as it was, nearly in the centre of a wide current, and in deep water, it was not easy to conceive to what this peculiar structure owed its origin; for the stones were piled up twenty feet, were not encrusted with lichens, but, on the contrary, except in three or four spots, were perfectly clean, and had evidently obtained their present

form from long exposure to attrition. I fancied, at this time, that it might have been produced by the combined pressure of the ice and current; but the following spring showed that the former was level entirely round, and the latter less powerful than might have been expected. I was induced to notice more particularly the formation of this conical island, because the Indians concurred in describing the phenomenon of a smoking rock or mountain in a granitic district, nearly destitute of wood.

For myself, I must say, that I observed no volcanic appearances along the whole line of our track, and it is not impossible that the Indians were mistaken as to this matter; for having myself had occasion to visit a place where one of my crew had fancied he saw a thick column of smoke issuing from a rock near the Ah-hel-dessy, I found that the smoke was nothing more than the spray rising from Parry's Falls.

A narrow brought us to Musk-ox Lake, about six miles long, surrounded by tolerably steep hills, abounding, as Maufelly said, at certain seasons, with those animals; and now having arrived at the commencement of a series of rapids, which the canoe was too weak to run, and too ricketty to be carried over, I had no choice but to stop, and rest satisfied with what had been achieved; which, if not equal to my hopes, was still sufficient to cheer my companions, and

lure them on to the relief, as we then supposed, of our long-suffering countrymen.

The rapids ran in a meandering course for an estimated distance of four miles, and then expanded into a wider part, the last bearing of which was north-east, where it was lost in a transverse range of mountains. According to the Indians, there was a large river not far off, that issued from the Cont-woy-to, or Rum Lake of Hearne, and fell into the Thlew-ee-choh. The distance of the lake was considered to be five days' march for a good hunter; and as they walk with little rest, I think this estimate not unlikely to be correct; though it is difficult to imagine an outlet at each extreme, running in opposite directions. The Indians, however, were unanimous on this head, and would not admit of there being a swampy marsh or narrow neck of land dividing the two waters; indeed, they one and all laughed at the idea, and said that I had crossed the western river myself, meaning Bellenger's Rapid, where my friend Franklin had so narrow an escape. But without dwelling longer on the subject, as to which I had always my doubts, I was now easy as regarded the magnitude of the Thlew-ee-choh, but very far from being so with respect to its course. The river, it was evident, would go on increasing by successive contributions from every valley throughout its descent, and would probably become a noble and ex-

pansive stream; but, slavishly subject to the trending and declination of the land, it might possibly lead to some part unfavourable to our object; and whatever its direction, the appearance of the blue Mountains in the distance afforded abundant reason for supposing that we should have no lack of rapids and falls.

The observations gave the latitude 64° 40′ 51″ N.; longitude 108° 08′ 10″ W.; variation 44° 24′ E. It appeared, therefore, that we were only 109 miles south of the lower extremity of Bathurst's Inlet; and as the two Indians, who had been any distance down the Thlew-ee-choh, agreed in stating that it took a turn to the left, and then went due north, there was a remote chance of its being identical with Back's River there, though its present N. E. trending was not favourable to that hypothesis.

The Yellow Knives, who travel across the country in the spring to spear the deer as they pass the rapid, were not accustomed to go beyond two days' march farther, through fear, as they said, of falling in with Esquimaux: little reliance, therefore, could be placed on their information respecting a river known to them only by report. Neither they, nor the Chipewyans, evinced the least desire to extend their knowledge by offering to accompany us. We embarked towards evening, on our return; and

on passing Icy River, I observed that it had two channels, occasioned by an island at its mouth: the ice had undergone no perceptible alteration. Having made the portages of the upper rapids with some inconvenience, owing to the fragments of rocks, and innumerable large stones, which slipped from under our feet, we reached the *cache* at Sand-hill Bay. It had not been touched by the wolves; and, with the exception of a solitary raven, busily occupied in devouring a piece of refuse deer's flesh, not a living creature was to be seen.

The canoe being repaired, we coasted along the eastern shore of Lake Aylmer, occasionally passing sand-banks of unequal height, and dipping to the south, whereas those on the Thlewee-choh dipped to the north.

As we neared the narrows of Clinton-Colden Lake, on the 4th of September, a smoke was observed far south; and, towards the evening, two Indians made their appearance on the bank of a hill, and, in obedience to our signs, came to the canoe. They informed us that, in a dispute between a Chipewyan and their countrymen, the Yellow Knives, the former had been killed; but, as he was an orphan, no one would revenge his death. The Indians generally, they said, had been distressed for provision, though, from the distant smokes they had seen in the day, it

might be inferred that they had been successful in their hunts, and would soon have the means of bringing us a liberal supply. Maufelly now told me that, as he understood his old father was with some Indians to the westward, and, from his infirmities, was unable himself to hunt, he was anxious to go and support him; adding, that the poor old man had no other dependence, and might be left to starve by the young men, who always followed the deer, regardless of the laggers behind. Knowing that so unnatural an act was altogether improbable, and feeling the necessity of retaining him as a guide to the east end of Great Slave Lake, I refused my permission, unless he were content to sacrifice what his labours had already earned—a condition which, I well knew, would not be palatable to him: and the difficulty was finally got over by his persuading one of the other Indians to become his companion, so as to enable him to return to his father at the earliest moment that I might find it practicable to release him and trust to his substitute. Accordingly, we made room for our new-comer, and, having picked up the bag of pemmican left in *cache*, encamped, at sunset, near the first rapid in the little river.

Two Indians soon arrived from Akaitcho, whose party had that afternoon found a seasonable relief to the long privation, which their squalid

and emaciated appearance too painfully indicated. I knew them both: one, indeed, had been with me to the Copper-mine River, on Sir J. Franklin's first expedition. With the usual apathy of their nature, they evinced no marks of satisfaction or surprise at seeing me; but received their tobacco, and smoked it as coolly as if it had been given by some gentleman of the country in the regular routine of a trading expedition. Their silence and seriousness soon, however, underwent an extraordinary change, when they heard some half dozen expressions which I had been accustomed to use on the former occasion. They laughed immoderately; kept repeating the words; talked quickly among themselves, and seemed greatly delighted. They were supplied with presents for my old friends Akaitcho and his brother Humpy; and as they were going, the interpreter came with a request on behalf of Maufelly, who was afraid, he said, to ask me in person lest I should be displeased, that I would give him leave only to go and see his wife, who had favoured him with a child in his absence, undertaking faithfully to return before we should be ready in the morning. To this there could be no objection; and I shall not easily forget the poor fellow's transports as he leapt into the canoe with his countrymen, and began to sing and shout in imitation of the Canadians.

September 5th. — Maufelly was as good as his word; for by 4 A.M. he arrived, accompanied by another of my Fort Enterprise acquaintances, who, actuated by curiosity, or the prospect of a smoke, was thus early in his attention. I had this day another opportunity of admiring the consummate skill of De Charlôit, who ran our ricketty and shattered canoe down four successive rapids, which, under less able management, would have whirled it, and every body in it, to certain destruction. Nothing could exceed the self-possession and nicety of judgment with which he guided the frail thing along the narrow line between the high waves of the torrent, and the returning eddy: a foot in either direction would have been fatal; but, with the most perfect ease, and, I may add, elegant and graceful action, his keen eyes fixed upon the run*, he kept her true to her course through all its rapid windings. The rapids brought us to the same lake which had been found with so much trouble, and crossed on the 25th of August. Our Indian preferred the western shore, which differed in nothing from its opposite, except that the rocks were higher, though, like the others, quite barren. A group of islands appeared in a S. S. W. direction; and, as we proceeded, the hills

* Lead of the water.

became more sloping and less craggy, with a light covering of moss upon them. Still farther south, in latitude 63° 15′ 00″ N., we saw the first dwarf pines, from fourteen inches to two feet high, which my bowman humourously called *des petits vieux*. In many of these the head of the stem was dead, and blanched with age ; while a progeny of branches shot out from the foot, with just so much of green on their stunted limbs as sufficed to show that they were alive. Nevertheless, such as they were, they were welcome to us, who had not seen any since the 20th of August; and, as all enjoyment is comparative, we looked forward with delight to the comfort of a good fire. Men's notions of happiness vary with their circumstances and condition ; and in the seemingly trifling change from one kind of food to another, the *voyageur* has as keen a sense of pleasure, and is, perhaps, as grateful to the bountiful Giver, as more favoured mortals amid their boasted refinements.

The eastern shore, though dimmed by a blue mist or haze, was occasionally visible, and the country began to assume a more wooded and inhabitable look. When we got to a long and rounded mound, about half a mile from the western side, I observed that both the Indians assumed a look of superstitious awe, and main-

tained a determined silence. I inquired the reason of this reverential demeanour; when Maufelly, after some hesitation, with a face of great seriousness, informed us, that the small island we were passing was called the Rat's Lodge, from an enormous musk rat which once inhabited it. "But what you see there," said he, pointing to a rock on the opposite shore, with a conical summit, "that is the Beaver's Lodge; and lucky shall we be if we are not visited with a gale of wind, or something worse. The chief would perhaps laugh at the story which our old men tell, and we believe, about that spot." He then proceeded to narrate, with great earnestness and solemnity of manner, a traditionary tale, which, as illustrative of Indian notions, may not be uninteresting to the reader. It was in substance as follows: "In that lodge there dwelt, in ancient times, a beaver as large as a buffalo; and, as it committed great depredations, sometimes alone, and sometimes with the aid of its neighbour the rat, whom it had enticed into a league, the bordering tribes, who suffered from these marauding expeditions, resolved upon its destruction. Accordingly, having consulted together on the best mode of executing their design, and arranged a combined attack; not however, unknown to the wary beaver, which, it seems, had a spy in the enemy's quarters. They

set out one morning before the sun rose, and, under cover of a dense vapour which hung upon the lake, approached, with noiseless paddle, the shore of the solitary lodge. Not a whisper was heard, as each Indian cautiously took his station, and stood with bow or spear in act to strike. One, the 'Eagle of his tribe,' advanced before the rest, and with light steps drew near a cavern in the rock; where, placing his head to the ground, he listened anxiously for some moments, scarcely seeming to breathe; then, with a slight motion of his hand, he gave the welcome sign that the enemy was within.

"A shower of arrows was poured into the chasm; and the long shrill whoop that accompanied the volley had just died away in its caverns, when a heavy splash was heard, which, for a time, suspended further operations. The attacking party gazed on one another in mute and vacant surprise; for they had not suspected the subterranean passage, and felt that they were baffled. The chief, after creeping into the cavern to explore, directed them to embark; and, having formed a crescent with their canoes at intervals of a hundred yards from each other, they paddled towards the Rat's Lodge, under the idea that the enemy might have retreated thither: if not, it was agreed, that the rat, though, upon the

whole, comparatively harmless, should pay the penalty of his untoward alliance, and suffer a vicarious punishment, for the sins of his friend and the gratification of the disappointed pursuers. The rat, however, fortunately for himself, had that instinctive foresight of approaching ruin which proverbially belongs to his race; and, however ready to assist his neighbour when matters went well with him, and something was to be gained by the cooperation, he watched with a prudent jealousy the conduct and fortunes of one so obnoxious to hatred, and was ready, on the first appearance of danger, to stand aloof and disclaim him. Accordingly, when the beaver presented himself at the lodge of his friend, to crave a temporary asylum from his pursuers, the rat, with many protestations of esteem and regret, civilly declined to admit him, and recommended him to make the most of his time by swimming to some rocks to the south, where he would be safe from his enemies.

"The beaver, though stunned for a time by this unexpected repulse, soon recovered his wonted spirit, and, feeling his situation to be hopeless, threw himself on the rat, and began a desperate struggle. How the contest might have ended, it was difficult to conjecture; but the whoop of the Indians arrested the combatants; and, darting

a look of vengeance at the rat, the beaver plunged once more into the water. The chase was long, and many were the hair-breadth escapes of the resolute beaver: but the ardour of the hunters was not to be quenched; and tracked to the end of the lake, and thence down the cataracts and rapids which mark its course to the next, the exhausted animal yielded its life, just as its feet touched the distant rocks of the Tal-thel-leh.

"But its spirit," said Maufelly in a low and subdued tone, "still lingers about its old haunt, the waters of which obey its will; and ill fares the Indian who attempts to pass it in his canoe, without muttering a prayer for safety: many have perished; some bold men have escaped; but none have been found so rash as to venture a second time within its power."

Whatever may be thought of this strange story, Maufelly related it with so serious an air, as to leave no doubt of his own entire and unqualified faith; and the minute circumstantiality of the detail showed with what a religious care he had treasured every particular.

The woods afforded us a cheerful fire at our encampment. The night was calm, and beautifully lit up by the flitting coruscations of a bright aurora; nevertheless, impending storms were

threatened by the cackling of hundreds of geese, which, at an immense height, were winging their flight to the southward. Ranged according to their families, the Grey, or Bustard, the White, and the Laughing Geese, came past in quick succession, vying in swiftness, as if anxious to escape from the wintry horrors of the north. Nothing could be more conclusive of the breaking up of the season; and we had reason to be grateful for being so near home.

September 6th.— The lake gradually contracted; and I was sorry to remark that the trees were generally small, and unfit for sawing into planks for the construction of my boats. A bay, edged by sand-banks, seemed at first sight to offer a better kind; but this also, on inspection, was found knotty, full of branches, and consequently unsuitable to the purpose. It was this spot that the Indians had recommended, as possessing all the requisites for building and supporting a new establishment; and a stronger example of their incapacity for judging, and of the necessity of receiving their suggestions with caution, could scarcely be brought forward. The aspect was unsheltered and forbidding; the waters were without fish; and there was hardly wood enough in the immediate vicinity to raise a temporary hut, far less to supply it with fuel.

Accustomed to their exaggerations, I was not

myself much disappointed; but it bore hard upon the men, whose utmost exertions would thus be required in making the necessary preparations, at a time when they should rather have been husbanding their strength for the ensuing summer. We soon got to the southern extremity of the lake, which is about forty miles long, and twelve broad at the widest part; and, out of respect to the distinguished corps to which some of my crew belonged, and from a grateful remembrance of the deep interest manifested by its officers* for the success of the expedition, and of their friendly courtesies to myself, I called it Artillery Lake.

The river, by which it discharges itself into Great Slave Lake, began its descent by an ugly rapid, too hazardous to run, and yet scarcely so dangerous as to induce us to make a portage of. We compromised, therefore, by lowering half the way, and carrying the rest. A second rapid was run; but we had not calculated on the amazing force of so confined a torrent; and, just as we gained the eddy, the old canoe got a twist which nearly broke it in two. Another clump of pines induced me to land; and, while the men examined the quality of the timber, I obtained a set of

† Col. Godby, Capt. Anderson, Lieuts. Tylden, Craufurd, &c.

sights, which gave the latitude 62° 53′ 26″ N.; longitude, 108° 28′ 24″ W.; and variation, 38° 42′ E.

The wood was no way better than that seen in the early part of the morning; and we pushed from the bank, with the intention of going carefully down the stream; though a look of indecision, if not of positive apprehension, betokened some inward working in the steersman's mind, for which I was utterly unable to account, until informed, that for days past Maufelly had been talking about the dangers he did know, and the dangers he did not know, in the Ah-hel-dessy. The Indians, he said, never attempted it in any manner, either up or down; and, as he was not in a hurry to die, though he was willing to walk on the rocks, he would not, on any account, run it in the canoe. I shamed him out of this unmanly resolution; and when he and his companion had indulged in a laugh among themselves, we slipt down another rapid. However, on trying the fourth, the steersman became so unnerved, as to lose all self-command; and, by not cooperating with De Charlôit, fixed us against a sharp rock, that cut the canoe. Happily, it twirled round, and floated till we reached the shore. The man's confidence was gone; and, rather than incur any more such risks in the foaming rapids before us, I abandoned an attempt which the Indian per-

sisted in declaring was impossible; and the trusty and battered canoe being left, with a few other things in *cache,* each man was laden with a weight of one hundred and twenty pounds, and began to pick his way up the steep and irregular sides of the hills. On gaining the summit, Maufelly pointed out to me the spot where Sanpere turned back when he was sent to look for the Thlew-ee-choh; so that he had never left the woods, and, consequently, had not been more than half the distance.*

At first, we walked with tolerable speed over the broken rocks, and through the intersecting gullies; but the kind of ladder exercise which this imposed taxed the muscles so severely, that the strongest was fain to slacken his pace, as the same interruptions and impediments multiplied upon us. We had every disadvantage in following the stream; and, as I could now trace it in a westerly direction as far as a range of mountains that cut it at right angles, and along the base of which it would necessarily flow, there could be no reason to impose upon my crew the fatigue of going there, when, by following a straight line to the east end of Slave Lake, the distance and labour might be so materially lessened.

I took leave, therefore, of the Ah-hel-dessy,

* See page 87.

and had abundant cause to rejoice at having done so; for the whole distance to the mountains appeared to be an unbroken succession of rapids, which must have stopped us; for, whether passable or not in a boat, they were evidently impracticable for a canoe. The mosquitos, and their confederates the sand-flies, had of late nearly disappeared, or, if a few still buzzed about, they were too torpid to give much annoyance, while the memory of their past injuries, with the present sense of security, had given occasion to many a jest: but our merriment was now interrupted by the unrelenting attacks of increased swarms of the latter, whose more southerly abode had preserved them in the enjoyment of robust and vigorous health. The persecution of these venomous insects, and the badness of the route, occasioned frequent halts; in one of which a solitary bear caught the ever-watchful sight of the Indian; and, instantly seizing a gun, he went with De Charlôit in pursuit.

The rock and valley favoured their approach; and, though Bruin was on the look out, and, raising himself on his hind legs, stretched out his neck, with a sort of waltzing motion, sniffing the wind suspiciously, all his care was ineffectual — in ten minutes he was lying dead, at the foot of the precipice over which he rolled as he fell. Maufelly immediately ran to some

willows; and, having cut a branch and trimmed it into a skewer, he fixed it into the bear's mouth, in such a manner as to keep the jaws fully extended; which, he assured me, with much gravity, would prevent its biting, as many of its kind had been known to do, and as his own father had found to his cost. To that hour, he said, he bore the marks of one, which he thought had been dead, and was deliberately preparing to cut up; when, to his great horror, it seized him by the leg. Aware of their obstinacy of belief on all matters connected with hunting, or relating to the animals with which they were familiar, I made no vain attempts to convince them of their errors, however ridiculous, but listened patiently, and without comment, to their stories; but my steersman was so much diverted at the gaping countenance of Bruin, that he gave loose to his mirth; which so annoyed the Indian, that, with a glance of ineffable contempt, not unmixed with anger, he muttered in his guttural language, "The white man did not laugh in the rapid." He then sat down and smoked his pipe, while his companion expertly stripped off the skin, and placed the meat in *cache*, to be sent for at a future opportunity. I could not avoid remarking the minute curiosity with which the operator inspected the entrails, the haste with which he threw over his shoulders a portion that he had

lopped off, carefully refraining to look in that direction, and the smile which played over his features at beholding the stomach filled with berries. " C'est leur façon," said the interpreter to my inquiry, who, notwithstanding the philosophic tenor of his answer, was evidently as interested in the scrutiny as the Indian himself. By the same " façon, " I learned that the reindeer had no gall-bladder in the region of the liver, nor any where else, that they could discover; a fact of which I have no hesitation in confessing my previous ignorance, but which was subsequently verified by the anatomical examination of Mr. King.

The march was resumed, sometimes in valleys heaped with confused masses of debris from the surrounding granite, at others along narrow shelves of perpendicular rocks, not unlike some of the passes of the Alps, and threatening the same disastrous consequences from a false step. Our route seemed even perilous; and thinking the Indian had purposely led us into it by way of revenge for the late laugh, I hastened forward to remonstrate; but he kept his lead, and when I reached the summit of the mountain, the sun was setting, and it was time to encamp. "Let not the sun go down on thy wrath," admonished me to be silent; and when Maufelly pointed to Artillery

Lake on the far horizon, and to another at the extreme south, I rejoiced that, whatever the motive might have been, he had chosen that steep and weary track. It was a sight altogether novel to me; I had seen nothing in the Old World at all resembling it. There was not the stern beauty of Alpine scenery, and still less the fair variety of hill and dale, forest and glade, which makes the charm of a European landscape. There was nothing to catch or detain the lingering eye, which wandered on, without a check, over endless lines of round backed rocks, whose sides were rent into indescribably eccentric forms. It was like a stormy ocean suddenly petrified. Except a few tawny and pale green lichens, there was nothing to relieve the horror of the scene; for the fire had scathed it, and the grey and black stems of the mountain pine, which lay prostrate in mournful confusion, seemed like the blackened corpses of departed vegetation. It was a picture of "hideous ruin and combustion."

Our encampment was broken up, and we were on our way very early on the morning of the 7th of September, but every one was too busily engaged in picking his way to speak; not a word was audible until about eight o'clock, when a fine buck deer, betrayed by its branching antlers, was espied feeding behind a point thirty paces from us. It was brought down; and the haunch,

covered with a rich layer of fat two inches thick, afforded a luxurious breakfast. Having put the remainder *en cache*, we proceeded on our way, and when we had gained the top of a hill Slave Lake was seen right before us, hemmed in by mountains of considerable magnitude and height. A craggy range to the right determined the course of the Ah-heldessy; and many a steep rock and deep valley between the lake and us, announced the fatigue which was to be endured before we arrived at our destination. But how can I possibly give an idea of the torment we endured from the sand flies? As we dived into the confined and suffocating chasms, or waded through the close swamps, they rose in clouds, actually, darkening the air: to see or to speak was equally difficult, for they rushed at every undefended part, and fixed their poisonous fangs in an instant. Our faces streamed with blood, as if leeches had been applied; and there was a burning and irritating pain, followed by immediate inflammation, and producing giddiness, which almost drove us mad. Whenever we halted, which the nature of the country compelled us to do often, the men, even Indians, threw themselves on their faces, and moaned with pain and agony. My arms being less encumbered, I defended myself in some degree by

waving a branch in each hand; but even with this, and the aid of a veil and stout leather gloves, I did not escape without severe punishment. For the time, I thought the tiny plagues worse even than mosquitos.

While speaking on this subject I am reminded of a remark of Maufelly, which as indicative of the keen observation of the tribe, and illustrating the humanity of the excellent individual to whom it alludes, I may be pardoned for introducing here. — It was the custom of Sir John Franklin never to kill a fly; and, though teased by them beyond expression, especially when engaged in taking observations, he would quietly desist from his work, and patiently blow the half-gorged intruders from his hands — "the world was wide enough for both." This was jocosely remarked upon at the time by Akaitcho and the four or five Indians who accompanied him; but the impression, it seems, had sunk deep, for on Maufelly's seeing me fill my tent with smoke, and then throw open the front and beat the sides all round with leafy branches, to drive out the stupefied pests before I went to rest, he could not refrain from expressing his surprise that I should be so unlike the old chief, who would not destroy so much as a single mosquito.

As we got to the confluence of the Ah-heldessy with Great Slave Lake, I was glad to per-

ceive that the trees, though knotty, were of greater girth, and that some small birch were also thinly scattered about. As yet, however, I had not seen any that would have answered for planking, and began to fear that we should have to send about one hundred and fifty miles for that indispensable material.

We had now reached the eastern extremity of the lake, where, in my letter of the 19th of August, I had directed Mr. M'Leod to build an establishment. Proceeding onward over the mossy and even surface of the sand-banks, we were accordingly gladdened by the sound of the woodman's stroke; and, guided by the branchless trunks, which lay stretched along the earth, we soon came to a bay, where, in agreeable relief against the dark green foliage, stood the newly-erected framework of a house. Mr. M'Leod was walking under the shade of the trees with La Prise, and did not hear us until we were within a few yards of him. We were ranged in single file, the men having, of their own accord, fallen into that order; and, with our swollen faces, dressed and laden as we were, some carrying guns, others tent poles, &c., we must have presented a strangely wild appearance, not unlike a group of robbers on the stage.

This, however, did not prevent my friend from testifying his satisfaction at our return.

He had expected that our route would have been by a small river, about a mile to the eastward, invariably used by the Chipewyans or Yellow-knives, whenever they proceed in that direction; and, as it may be supposed, quite unknown to me until that moment. On subsequent inspection, however, it was found to be too shallow for canoes, being merely the outlet to some small lakes, and the waters of a picturesque fall, from four to eight miles distant. There were many small Indian canoes stowed under the branches of the willows; and as it was the lowest and most favourable route to the Barren lands, it was preferred, it seems, to those by which I had passed.

CHAP. VII.

"Le grand jeune Homme." — Trade with the Indians. — Sunday. — Mr. King arrives, with two Bateaux. — Performed a Surgical Operation. — Discomforts of an Indian Canoe. — Conduct of the Party. — Erection of new Dwelling. — Arrival of Indians. — Their Policy. —Aged Indian Woman. — Starving Visitors.—Case of Revenge for Inhospitality.—The Thlew-ee-choh described. — Observatory. — Strange Appearance of the Aurora. — Pouring in of the Indians. — Superstitious Fancies. — Shortness of Food.— Domiciled in the new Building, named Fort Reliance.—Supplies again fail.—Akaitcho. — Discharge of De Charlôit and two Iroquois; also, of La Charité. — Gloom of the Indians. — Story of a young Hunter. — Breach of Indian Law. — Death of the old Woman. — Christmas-day. — Short Allowance. — Experiments. — Excessive Cold. — Arrival of Mr. M'Leod. — Barbarous Atrocity. — Revolting Story of an Indian.

I LEARNT from Mr. M'Leod, that he had waited the arrival of the Indian chief, "Le grand jeune homme," at Fort Resolution; that at first the chief had affected to be mightily disappointed on being told that I did not require his services; but had gradually moderated his ill humour on hearing of our limited stock of goods, and the strict regulations that were to be enforced; and finally, having been requited for his loss of

time with the value of forty beaver skins, he became perfectly satisfied, and was so left.

Assisted by the Indians, and having picked up La Prise with my canoe, &c., at Hoar-frost River, Mr. M^{c}Leod had arrived on the 22d of August; and, with only four men, had contrived to erect the log framework already mentioned. The work had been seriously interrupted by the sand-flies; nor could the men stand to it at all without the protection of clouds of smoke, from small fires of green wood which were kept burning around them.

The hopes of a new establishment on the borders of a lake rest chiefly on the produce of a fishery; and the daily supply of white fish, as well as trout, yielded by the nets, seemed to verify the accounts we had received, and held out an encouraging prospect for the future. Some meat, also, had been seasonably brought in by the Indians, in paying for which, Mr. M^{c}Leod, foreseeing a great expenditure of ammunition, had, with a proper regard to economy, reduced the usual trading prices. The innovation was by no means popular, but, as there were upwards of one hundred and fifty miles between us and the next house, it was their interest to acquiesce; for, the market being near their hunting grounds, if they got smaller profits, they had quicker returns.

The following day being Sunday, divine service was read, and our imperfect thanks were humbly offered to Almighty God for the mercies which had been already vouchsafed to us; and, though in this imperious climate, with every thing to do, time was certainly precious, yet, feeling that the first opening of the sacred volume in this distant wilderness ought not to be profaned by any mixture of common labour, I made it a day of real quiet and repose.

After the men had recovered from their bites, rather than their fatigue, they were sent for the meat which we had concealed on our track; and, returning by a different route, they had the good fortune to find a clump of trees sufficiently free from knots to admit of their being converted into the proper length of planking for boats. This discovery was most important, as it was afterwards found to be the only clump at all suited to the purpose; and, had it not been thus luckily stumbled on, the trouble, expense, and fatigue of sending at least a hundred miles over the ice for wood, might have cramped, if not altogether paralysed, our efforts in the ensuing summer.

On the 16th of September, I had the gratification to welcome to the fort my companion Mr. King. He arrived with the two laden bateaux; and, notwithstanding his inexperience in the country, he brought his heavy cargo in a very

good state of preservation. He had suffered, as was to be expected, the usual impositions which the old *voyageurs* consider themselves entitled to practise on the uninitiated, and had, consequently, been exposed to frequent personal inconveniences. Between Cumberland House and Isle à la Crosse, he met some Cree Indians, "who passed," said Mr. King, "in their canoes, in seeming high spirits; but in a short time the old man of the family returned, with a request that I would extract a tooth, claiming me, at the same time, as a brother 'medicine man.' The difference in his first and second appearance was truly ludicrous, — then active and cheerful, now, diseased and dejected: he acted his part admirably, and, at his earnest entreaty, I gave him a few harmless mixtures, which might assist him in maintaining his professional respectability." The negligence of the men had caused his passing the pitch springs in the Elk River without taking in a supply; and, on reaching Chipewyan, he had to send back for some. Fortunately, during the delay so occasioned, Mr. Charles, the chief factor of the district, arrived, and relieved him from another embarrassing situation with regard to provisions. He had my directions to supply his party with enough for thirty days' consumption, but was informed by the clerk in charge that he could not have

half the quantity, as some must be reserved for the Slave Lake and Peace River brigades. His instructions were positive, to keep our sixty bags entire, except in case of actual starvation; and he had begun therefore to provide nets, to avoid the necessity of trenching on them, when the opportune appearance of the chief factor removed his disquietude, by clearing the store for him. Mr. King at the same time bore grateful testimony to the general courtesy and kindness manifested by this gentleman. Certainly, to one who is wandering for the first time in a strange land, the meeting with a generous and warm-hearted countryman is inexpressibly delightful. It cheers and refreshes the traveller, carrying back his thoughts to that dear land which claims them both for its children. That Mr. King, under the circumstances in which he found himself, should feel even more than ordinary gratitude was but natural.

While at Chipewyan, Mr. King had performed a successful operation on a woman's upper lip, which was in a shocking state from cancer, brought on, as he thought, from the inveterate habit of smoking, so common among the half-breeds. He had met with two or three cases of it before; one, at Fort William, was incurable, and very loathsome. His presence was hailed with delight at every post beyond Jack River,

either by the natives, or those who resided at them; and it surprised me to learn how much disease has spread through this part of the country.

Having procured the tar, Mr. King embarked in a half-sized canoe with four men, and followed the bateaux, which had been sent ahead, without other guide than James Spence, one of my men in the last expedition, who had exchanged with a Canadian, to join me,—an excellent lad, but with not a very accurate memory, so that the canoe was nearly drawn into the frightful rapids and falls of the "Cassette," to run which is never even attempted. He had passed the proper turning to make the portage, and the Iroquois in the bow declared he could neither advance nor retreat. Luckily they were near the land, which they reached; and, by converting their ceintures, or sashes, into a towing line, they hauled up against the strong current, and ultimately got into the right track. On descending the Slave River, Mr. King met some Indians, and engaged one to take him in his small canoe to Fort Resolution, under the impression of gaining time; and this species of travelling he described as not being over comfortable. "I was forty hours in the Indian canoe," said he, "and it was decidedly the most irksome time I ever spent. I was not able to move hand or foot; and this occasioned such a state of drowsiness,

as made sleep almost irresistible, though the consequence might have been the upsetting of the canoe." Some strong tea, however, dispelled it; and, on reaching the Fort, he found that the boats had been four days before him.*

The people, according to Mr. King's account, had conducted themselves as well as those of their station generally do, under similar circumstances, with the exception of two; and they were the less excusable, from the consideration shown them, and the generous treatment they had experienced from the Arctic Committee in England. I therefore took this occasion to assemble the whole of my party, and to inflict a public and severe reprimand upon the offenders. The binding nature of their agreements was recapitulated, and a brief explanation given of the system that would be observed throughout the service. I endeavoured to convince them that it was their true interest to conduct themselves like good and honest men; and I reminded them that they were embarked in an enterprise which, whether successful or not, would always receive the meed of public approbation. After this admonition I introduced Mr. M'Leod as an officer of the expe-

* I had been kindly provided with various seeds, by Mr. Lindley, the learned Secretary of the Horticultural Society, some of which were left at each post.

dition, and the person to whose superintendence and management our future establishment would be committed; and I informed them that from him they would receive their orders.

The site of our intended dwelling was a level bank of gravel and sand, covered with reindeer moss, shrubs, and trees, and looking more like a park than part of an American forest. It formed the northern extremity of a bay, from twelve to fifteen miles long, and of a breadth varying from three to five miles, named after my friend Mr. M'Leod. The Ah-hel-dessy fell into it from the westward, and the small river previously mentioned from the eastward. Granitic hills, or mountains, as the Indians term them, of grey and flesh-coloured felspar, quartz, and in some places large plates of mica, surrounded the bay, and attained an altitude of from five to fifteen hundred feet; which, however, instead of sheltering us, rather acted as a conductor for the wind between E. S. E. and W. S. W. which occasionally blew with great violence. The long sand-banks, which ran out between the two rivers, and the snug nooks along the shores, seemed to offer a safe retreat for the white fish during their spawning season, which was now at hand; and more nets were set, to take advantage of so auspicious a promise.

The men were divided into parties, and ap-

pointed to regular tasks: some to the felling of trees, and squaring them into beams or rafters; others, to the sawing of slabs and planks: here was a group awkwardly chipping the shapeless granite into something like form; and there a party in a boat in search of mud and grass for mortar. It was an animated scene; and, set off as it was by the white tents and smoky leather lodges, contrasting with the mountains and green woods, it was picturesque as well as interesting.

In a few days, the framework of the house and observatory were up; but, in consequence of the smallness of the trees, and the distance from which they were carried, our progress in filling up the walls was necessarily slow. In the meantime, there was an evident falling off in the numbers of the white fish, which had given place to trout. On examination, it was found that these latter had eaten the spawn of the others.

We were scarcely settled in our new station, when a small party of Indians came with a little meat; and, having obtained in exchange what they wanted, went away again, leaving, however, behind them an infirm old man. Two more elderly Chipewyans shortly afterwards joined him, one of whom carried on his back his son, who was weak from want of food. In short, the sick and miserable soon began to flock in from all quarters, in the hope of procuring that

succour from us which we could not afford but through the means of their own countrymen. Indifferent to the sufferings of those around them, the hale hunters move with the activity almost of the animal they pursue; trusting to the humanity of the white man to sustain the infirm or sinking members of their family. In a long settled post, the resources of which are constant, this may be tolerated, so long as it does not amount to imposition; but in our situation, cramped as we were already beginning to be in our means, it was easy to foresee that the injudicious encouragement of such a practice would involve us in inextricable difficulties. With this conviction, I resolved not to yield to it; and, though the applicants never left us altogether unsolaced or empty-handed, they were not permitted to remain on the ground. Wherever a station is established, not only the diseased, who come from necessity, but swarms of other visitors, immediately repair to it,—women and children, old and idle, seeking what they can get, or actuated by curiosity, or, as they say, "coming to see their relations," by that term meaning the half-breed women who are the partners of the *voyageurs*. Fortunately we had none of these relations, and were therefore free from the unwelcome civilities of their kinsmen of the forest. To be sure, when an excuse is wanted for a visit, they are not par-

ticular as to the degree of affinity; for an Indian, who addressed me as "brother in law," being asked why he gave me so affectionate an appellation, answered with great *naïveté*, "What! does not the chief recollect that I spoke to him at Chipewyan?"

On the 29th of September, a fire being seen on the opposite side of the bay, a canoe was despatched to see who had made it; and soon returned, not with a good load of meat, as we had hoped, but with a poor old woman, bent double by age and infirmities, and rendered absolutely frightful by famine and disease. The ills that "flesh is heir to" had been prodigally heaped on her, and a more hideous figure Dante himself has not conceived.

Clad in deer skins, her eyes all but closed, her hair matted and filthy, her skin shrivelled, and feebly supporting, with the aid of a stick held by both hands, a trunk which was literally horizontal, she presented, if such an expression may be pardoned, the shocking and unnatural appearance of a human brute. It was a humiliating spectacle, and one which I would not willingly see again. Poor wretch! Her tale was soon told: old and decrepit, she had come to be considered as a burden even by her own sex. Past services and toils were forgotten, and, in their figurative style, they coldly told her,

that "though she appeared to live, she was already dead," and must be abandoned to her fate. "There is a new fort," said they; "go there; the whites are great medicine men, and may have power to save you." This was a month before; since which time she had crawled and hobbled along the rocks, the scanty supply of berries which she found upon them just enabling her to live. Another day or two must have ended her sufferings.

The nights now began to get frosty, and diminished the chance of taking fish in any number, so that in a length of four hundred fathoms of net, only twenty-seven, and those of an indifferent sort, were caught. As these did not suffice for the rations of the day, we were reluctantly driven to our sea stock of pemmican.

October. — Starving Indians continued to arrive from every point of the compass, declaring that the animals had left the Barren Lands where they had hitherto been accustomed to feed at this season; and that the calamity was not confined to the Yellow Knives, but that the Chipewyans also were as forlorn and destitute as themselves. There is no reasoning with a hungry belly, that I am acquainted with. The only way is to satisfy its demands as soon as possible; and, indeed, when this is obstinately refused, the Indian considers, and perhaps rightly,

that he is only obeying the natural impulse of self-preservation, in laying forcible hands on whatever falls within his reach.

At one of the Company's posts in the northern department, where the animals, as in our case, were so scarce that the natives could not procure subsistence, they threw themselves on the generosity of the gentleman in charge, and requested a small proportion of the meat out of his well-stocked store, to enable them to recruit their strength for fresh efforts in the chase. They were denied; and returned dejected to their wintry abode. Now and then a moose deer was killed, but long was the fasting between; and in those intervals of griping pain, the inhospitality of the white man was dwelt upon with savage indignation, which at last vented itself in projects of revenge. An opportunity presented itself in the arrival at their lodges of the interpreter, who had been despatched from the factory to see what they were doing. This man had not been popular with them before, and the part he had taken in the late transaction had aggravated the feeling against him. Of this he was himself aware; and being a half-breed, was not without the cautious suspicion which is characteristic of the aboriginal. Still the wonted familiarity, and the friendly pipe that greeted his entrance into the principal

lodge, diminished his fears; and a little dried meat, given with apparent cheerfulness for the use of the fort, finally removed all apprehension. Two Canadians, who had accompanied him, left early on their return; and, in an hour after, he followed their steps. The Indians watched him until he was hid by the woods; then grasped their guns, and by a short cut gained a spot favourable for their purpose, before any of the three had arrived. Cowering in ambush within ten paces of the track, they waited for their approach, and at a given signal fired, and brought down two of the unsuspecting travellers. The third fled, and was pursued with savage yells by the infuriated Indians. Fear added wings to the Canadian; and having outstripped the foremost, he hid himself breathless and exhausted among some rocks. The Indians rushed past without perceiving him, and having reached the house, broke furiously into the apartment of the gentleman, who had not yet risen, and after reproaching him with the horrors he had caused, instantly deprived him of life.

Their vengeance being thus horribly satiated, they returned to the woods without committing the slightest act of spoliation. The Canadian and another man, whom, strange to say, they did not molest, hastened to the neighbouring posts, with an account of this shocking catastrophe. Fresh parties were established at the same

station, and the perpetrators of the murder were finally hunted down by the people of their own tribe, — a melancholy but salutary lesson not only to the red man but to the white.

It was now the middle of October, and up to this time a few snow birds and four white partridges were all that had been seen. The deer too, as well as the fish, seemed to have taken their departure. The Indians, satisfied with the pittance doled out to them, and having been supplied with hooks and bits of nets, quitted us one after another, leaving only some of the elder ones, from two of whom I learnt, that they had been further down the Thlew-ee-choh than any others of their tribe. They described it favourably, and asserted that it was entirely free from falls, though sufficiently interrupted by rapids. The value of this assertion will hereafter be seen. Their idea of its course was, that it ran due north, or, if any thing, rather to the eastward, though, from some blue mountains often mentioned in the discourse as the limit of their knowledge, it was represented as taking a course to the left. Their statements, moreover, corroborated the previous opinions given of the The-lew, which was said to flow through a low marshy tract, connected with an estuary, opening to the sea by a narrow channel, the shores of which were lined by Esquimaux. On

these people, they said they had formerly made war, as well as on the Esquimaux at the mouth of the Thlew-ee-choh.

The work of building went on briskly, though our substitute for mortar, clay and sand, froze as fast as it was laid on. The observatory was soon completed; it was a square building twelve feet inside, having a porch at the west with double doors, the outer one of which opened south. The roof was angular, and covered with rough slabs of wood having the flat side down, and the hollows on the outside were filled up with a mixture of clay, sand, and dry grass. It had four windows of moose-skin parchment, with a small pane of glass in each, facing respectively north, south, east, and west. The space within was carefully cleared of all stones, and a thoroughly dried trunk of a tree seven feet long, and two feet and a half in diameter, was let down into a hole three feet deep in the centre, and then rammed tight by successive layers of clay and sand. This part was cased in a square framework of three feet, grooved and mortised; and the interior spaces were gradually filled up with the same composition as was used to plaster the walls. When the plaster was quite dry, a square thick board was mortised on the post, and the whole fabric was as firm as a rock. The floor was planked, and when the doors were closed, the

difference of temperature between the out and inside was 14°. There was not a nail or the smallest particle of iron in the building; and to guard against the accidental approach of any person with a gun, an axe, or the like, I had it enclosed with a ring fence of seventy feet diameter. It was situated on a gentle rise, two hundred yards from the lake, and about one hundred from the east end of the house. A strong staff, fifteen feet high, was fixed on the northern extremity of the ridge pole, on the spindle of which was a vane; and besides white poles, placed in the direction of the true and magnetic meridian, I had a horizontal cross at the north side of the observatory, within the fence, to enable us to take the bearings of phenomena with greater accuracy than can be attained by the mere guess of the eye. The angular heights of the surrounding mountains were also ascertained.

Observations were immediately made for the magnetic force and dip, with Hansteen's and Dollond's needles, and a lozenge-shaped one after the suggestion of Captain Beechey; but this, for the sake of clearness, will, together with our observations of other phenomena, be thrown into a tabular form in the appendix. Three thermometers (spirit) were placed inside the observatory—four outside, on the north, and one exposed to the sun on the south side. They had been previously

compared, and for some time their relative means were taken; but afterwards that plan was relinquished, and the nearest mean thermometers were adopted as standards for the whole. The daily-variation instrument, made by Jones, on a plan of Professor Christie's, to be explained hereafter, was also adjusted in the magnetic meridian, and its readings registered ten times a day, between eight in the morning and midnight. The temperatures were noted fifteen times in the twenty-four hours.

A short time after the needle was placed, there was a strange appearance connected with the aurora, and which, though it will probably be again mentioned when I come to treat of that subject expressly, I may perhaps be excused, on account of its singularity, for noticing in this place also. At 5^h 30^m P. M., while occupied in taking the transit of a star, I perceived the coruscations streaming from behind a detached and oblong dark cloud in a vertical position at E. b. S.* They issued along an undulating arch 38° high, and spread themselves laterally in beams north and south. Another arch, brighter and narrower than the former, suddenly emerged from W. b. N., and passed between a nearly horizontal black cloud and the stars, which were

* Magnetic bearing.

then not visible through the Aurora. I immediately looked at the needle, and found it slightly agitated, but not vibrating: on returning, I was surprised to see the dark horizontal cloud to the westward not in the same shape as before. It had now taken a balloon form, and was evidently fast spreading towards the zenith. On looking to the eastward, I perceived that a dark cloud there also was rapidly altering its appearance. So unusual a sight induced me to call my companions, Messrs. King and M^c^Leod, and we saw the dark broad mass from the westward gradually expand itself, so as to meet the other, which was likewise rising, at or near the zenith. The effect of the junction was a dark gray arch, extending from E. b. S. to W. b. N. across the zenith, and completely obscuring the stars, though at each side of the arch they were particularly clear and twinkling. In the meantime, the Aurora assumed every variety of form; such as undulating and fringed arches, 30° to 50° high and more or less broad, with flashes and beams at right angles to them. The cloudy arch, too, was illuminated at and around its N. W. edges near the horizon, while rays and curved beams played round its eastern extremity. In a few seconds, the part of this nearest the horizon assumed a zig-zag form, like forked lightning; and immediately the western extre-

mity sympathised, undergoing momentary transitions which defy description. Such convulsions at the extremes soon affected the centre of the arch, which becoming gradually fainter and fainter, at last vanished entirely, leaving the stars to shine forth in all their brilliance. The detached masses yet remained, though under various forms, and the Aurora nimbly played round and through them, especially the eastern one, until not the slightest vestige of them remained.

On this occasion the Aurora was high, and consequently did not act powerfully on the needle, which was an extremely delicate one; but I had opportunities afterwards of seeing this drawn eight degrees on one side, by the same agency; a remark which I only make for the information of those, who may not be disposed to inspect the tables.

The little river to the east, and the borders of the lake, were frozen over by the latter end of the month; but the weather was very mild, and a fresh gale generally broke up the ice again in a few hours. To this unusual mildness of the season may be ascribed the unparalleled sufferings of the Indians, who, emaciated and worn out by fatigue, continued to pour in upon us from the barren lands, where, contrary to their habits, the deer still remained; keeping

at too great a distance to be followed. One poor fellow had not tasted meat for ten days, and, but for the hope of seeing us, must have sunk by the way. Pinched as we were ourselves, little could be bestowed on the wretched sufferers. Amongst other fancies, the Indians began to imagine that the instruments in the observatory, concealed from every one but Mr. King and myself, were the mysterious cause of all their misfortunes: nor were they singular in this opinion; for on one occasion when taking the dip, &c. two of the *voyageurs* listened, and hearing only a word at intervals, such as Now! Stop! always succeeded by a perfect silence, they looked at each other, and with significant shrugs, turning hastily away from the railing, reported to their companions that they verily believed I was "raising the devil."

Endeavouring to laugh away the whimsical notion of the Yellow-knives, I told them that they had mistaken the thing, for that the mysterious instruments attracted, not dispersed, the animals; as they would find when they went to hunt. The assertion, uttered in jest, seemed to be verified in earnest, for an old bear was shot the same day, and, though lean and tough, was greedily devoured. Although, among so many, it was but a taste for each, it excited a slight animation; soon, however, they relapsed into

their former melancholy; and a painful sight it was to behold them, singly or in groups, standing by the men at their meals, and eagerly watching each envied mouthful, but disdaining to utter a word of complaint. The wretched old woman, whom I have spoken of before, was too much worn out by her infirmities to be sensible of our kindness and protection; and, though assured that she would be taken care of, she never failed to attend our scanty repast, and, with monotonous and feeble wailings, assailed my servant for the scrapings of the kettles.

Different places had been tried for fish, but after the first haul, the nets were invariably found empty. To remedy, if possible, so deplorable a circumstance, the men were divided into parties, and, with the exception of one retained to finish the house, were sent to a specified part of the lake for the sole purpose of procuring subsistence. Some succeeded, but others returned after a short absence, with the loss of two nets, and a most discouraging account of their labours. I had therefore no resource but to reduce the daily rations, and stop the usual allowance to the dogs, many of which became in consequence so reduced as to be barely able to crawl, and to this day I have not ceased to wonder how they were kept alive.

In the midst of these disasters, our hopes were

somewhat brightened by the accidental but well-timed arrival of two young hunters, who, having separated from Akaitcho to look for deer, had fallen on a large herd, some of which they had killed, but, in returning to inform the chief of their good fortune, had got bewildered in fogs, and finding themselves, when the weather cleared, within a day's march of our situation, could not resist the temptation to get a little tobacco in exchange, to us most welcome, for some fresh meat. In a few hours, all who were capable of exertion set off for the land of promise; and, for a time, the immediate prospect of want was removed.

On the 5th of November, we had the pleasure of changing our cold tents for the comparative comfort of the house, which, like most of those in this country, was constructed of a framework, filled up with logs let into grooves, and closely plastered with a cement composed of common clay and sand. The roof was formed of a number of single slabs, extending slantingly from the ridge pole to the eaves; and the whole was rendered tolerably tight by a mixture of dry grass, clay, and sand, which was beat down between the slabs, and subsequently coated over with a thin layer of mud. The house was fifty feet long and thirty broad; having four separate rooms, with a spacious hall in the centre for the

reception and accommodation of the Indians. Each of the rooms had a fireplace and a rude chimney, which, save that it suffered a fair proportion of the smoke to descend into the room, answered tolerably well. A diminutive apology for a room, neither wind nor water tight, was attached to the hall, and dignified with the name of a kitchen. The men's houses, forming the western side of what was intended to be a square, but which, like many other squares, was never finished, completed our building. As every post in the country is distinguished by a name, I gave to ours that of Fort Reliance, in token of our trust in that merciful Providence, whose protection we humbly hoped would be extended to us in the many difficulties and dangers to which these services are exposed. The exact site is in latitude 62° 46′ 29″ N., longitude, 109° 0′ 38·9″ W.; the variation, 35° 19′ east, and dip, 84° 44′. About a mile from the house was a tree which had been struck by lightning, and splintered twenty feet down the trunk, the pieces being thrown thirty or forty paces away. I do not recollect to have seen a similar instance.

A continuation of mild weather, and the manner in which the deer were harassed, caused them to return to a distance on the barren lands, where they could not be followed at this season;

and towards the end of the month our supplies again failed; distress was prevalent, and the din and screeching of women and children too plainly indicated the acuteness of their suffering. The opportune appearance of my old acquaintance, Akaitcho, with a little meat, enabled us to relieve and quiet the confusion, and some of them went away with the chief, who promised that we should not want as long as he had any thing to send to the fort. He did not directly inquire about Sir John Franklin, or Doctor Richardson; but his satisfaction was very visible, when I gave him some little presents in their names, and pointed to the silver medal presented to him at Fort Enterprise, which he was then wearing as a proof that he had not forgotten them. An additional trifle or two made him quite happy, and he left us to all appearance the determined friend of the expedition.

Among those who accompanied him was an old man, who gave us information of a lake about thirty miles to the S. E., where on pressing occasions he resorted to fish; and, willing to catch at the smallest chance of saving the pemmican, I prevailed on him to act as guide to a small party selected to make the trial; the result of which, if favourable, was to be communicated without delay. Accordingly on the third day La Charité, one of the party, reached the house

late at night, after a painful walk without snow shoes through deep snow in the woods, bringing four fish, and the welcome tidings, that by spreading over a greater surface there was a likelihood of taking more. Every man that could be spared was thereupon sent away with him; we who remained being thrown upon our pemmican, a third of which was already expended.

December 7. — Being anxious to diminish as far as possible the number of our party, I now discharged De Charloît and two Iroquois, conformably to their agreements, and La Charité, at his own solicitation; but not until he had provided a substitute, who turned out to be in every respect superior to him as a *voyageur*. They were supplied with the necessary means to carry them to the next establishment; and I charged De Charloît with my despatches for Mr. Hay, Under-secretary of State for the Colonies, and for the Admiralty — together with extra requisitions for the use of the expedition during the following year, to be sent from York Factory. Only four Indians arrived within this week, and they came for food. They were greatly dejected, and added to the general gloom by encouraging the apprehension of those calamities which, judging from so unpromising a beginning, might be expected to befal them during the winter. Had it been a solitary instance of misfortune,

their superstition, I fear, would have fixed the blame on the expedition; but it appeared that the two preceding years had been pregnant with more than ordinary evils to the different tribes inhabiting the country about Slave Lake and the M^c^Kenzie River. To the westward, indeed, and more directly in the neighbourhood of the Rivière au Liard, forty of the choicest hunters among the Chipewyans had been destroyed by actual famine; many others had not yet been heard of; and the scattered survivors, from the rigours of the climate, and the difficulty of procuring a single animal, had experienced the severest hardships which even their hardy natures were capable of sustaining. Sometimes unusual and appalling visitations carried them off, as in the case of two women and their children, who with their laden dogs were travelling near the mountains, towards their tents; when suddenly, one of them called out in alarm, and before they had time to fly, they were caught in a whirlwind, and in an instant swept into eternity. One boy only out of the number was found, and he died in excruciating pain the same night.

December 16. — The interpreter came from one of the fishing stations with an account of the loss of some nets, and the inadequacy of their means of support. They seldom took more than thirteen small fish in a day, and the Indians,

now reduced to a state of great weakness, crowded round them for a portion of what they could ill afford. It was the same with us; for those who happened to be within a moderate distance fell back on the Fort, as the only chance of prolonging their existence; and we freely imparted the utmost we could spare. In vain did we endeavour to revive their drooping spirits, and excite them to action; the scourge was too heavy, and their exertions were entirely paralysed. No sooner had one party closed the door, than another, still more languid and distressed, feebly opened it, and confirmed by their half-famished looks and sunken eyes their heart-rending tale of suffering. They spoke little, but crowded in silence round the fire, as if eager to enjoy the only comfort remaining to them. A handful of mouldy pounded meat, which had been originally reserved for our dogs, was the most liberal allowance we could make to each; and this meal, unpalatable and unwholesome as it was, together with the customary presentation of the friendly pipe, was sufficient to efface for a moment the recollection of their sorrows, and even to light up their faces with a smile of hope. —"We know," they said, "that you are as much distressed as ourselves, and you are very good." Afflicting as it was to behold such scenes of suffering, it was at the same time gratifying to observe the resignation with which they were

met. There were no impious upbraidings of Providence, nor any of those revolting acts, too frequent within late years, which have cast a darker shade over the character of the savage Indian. While the party thus scantily relieved were expressing their gratitude, one of their companions arrived, and after a short pause announced that a child was dying for want of food, close at hand. The father instantly jumped up; and having been supplied with some pemmican, for we had no other meat, hurried away, and happily arrived in time to save its life.

Like all other barbarous nations, these people are naturally prone to superstition; and many of their legends, whatever may be thought of them in these enlightened days, are quite as reasonable as the traditionary tales which in other states of society dimly reveal the past, and serve to amuse the present age. They have their good and evil spirits, haunting the waters, the woods, and the mountains; their giants, and confabulating animals, "animali parlanti;" their "Pucks," and a host of other mischief-loving gentry. I allude to these superstitions here, by way of preface to a story related by one of our unhappy guests, respecting the conduct of a Chipewyan, whom he and many others held responsible for the absence of the deer.

"We might have known," said a young but

emaciated hunter, as he ejected large volumes of smoke from his nostrils,—"we might have known that this winter would be marked by something uncommon. The Chipewyans have always been unfriendly to, if not secret enemies of, the Yellow-knives, and would feast and rejoice at our misfortunes. Why did he come among us? Was he not cautioned by our old men to desist from his rash purpose, and listen to the words of wisdom founded on experience? But no; he had often, he said, been told, that if a solitary deer were beaten, the whole herd would at once abandon that part of the country where the deed was done: as if thousands of animals feeding at places far distant from each other could possibly know what he might do at any particular spot to one of their kind. He did not believe it; some people had bad tongues, and at the first opportunity he would put the matter to proof. Accordingly, in the spring of the year, when a little crust was formed on the snow by the effect of the heat of the day followed by the cold of the night, he sallied out on his long snow shoes of six feet; and skimming lightly over the bright surface, soon discovered eight or ten deer feeding on a frozen swamp.

"Making a circuit behind them, he approached with the greatest caution; yet even his almost noiseless tread scared these timid and watchful

creatures. As he had expected, they ran upon the lake, using every exertion to escape; but their hoofs, though remarkably broad, were unequal to their support, and at each plunge they sank to their haunches in the snow, and became an easy prey to the hunter; who, borne up by his long snow shoes, got close to and killed them all except one. This he beat in the most wanton and merciless manner, and then drove it, stupefied and spent with fatigue, to his lodge, where, amidst the laughter of himself and his kindred, its miseries were at last ended. 'Now,' said he, 'I shall know if there be any truth in your sayings; and, whether there be or not, I am a Chipewyan, and shall return to my lands, which are far away, and better than your swampy and barren country.' Did we speak the truth? the deer know it, and will not come."—He ceased speaking, and a deep guttural "whew, whew!" shewed the interest with which the recital had been heard.

Another day a middle-aged woman, with a girl about six years old, came to us in great consternation, seeking protection against a hunter, over whose gun she had unluckily stept during the night. On discovering what she had done, which, in the opinion of an Indian, would destroy the qualities of the gun and prevent its killing, she was so alarmed for the consequences

of her crime, that, though attached to the man, she preferred flight to the chance of what his fury might inflict on her. However, after allowing a reasonable time for the evaporation of his passion, she returned; and as he had, fortunately for her, shot an animal with the same gun since the disaster, she was let off with a sound thrashing, and an admonition to be more careful for the future. This, according to Indian law, was most lenient, as the unhappy female guilty of such delinquency seldom or ever escapes with a slighter punishment than a slit nose, or a bit cut off the ears. In the evening of the day on which this last incident occurred, a man, his wife, and three children, sought our hospitality, in a condition which made me grieve afresh that we had so little to bestow. They were the most wretched party of all—mere shadows. The man was reduced to a skeleton; and the scanty and tattered covering which served him for a garment, having become hard and frozen, had, by constant friction against his bare legs, produced a dreadful state of excoriation. Nor were the others much better off. Our situation indeed now assumed a serious aspect, and it was impossible to divest one's self of anxious foreboding for the future. In the midst of this gloom occurred the death of the wretched old woman before mentioned. In spite of all the care

which we could bestow, she had continued to sink under accumulated infirmities and disease; the circulation became languid, and her extremities were severely frost-bitten. Too feeble to raise herself up, she crawled whiningly along on her hands and knees, with a stick to make known her presence, wherever her inclination led her; but chiefly to Mr. King's room, where, once a day, she received the benefit of his humane attention. The most indifferent observer must have been occasionally shocked at the loathsome objects which have met his eye on some parts of the Continent, and particularly at Lisbon; but no form or variety of human wretchedness or degradation that I have ever witnessed could be compared with that which was exhibited in the person of this poor old creature. The effect of her appearance,—the involuntary shuddering which it caused, may perhaps be conceived, but cannot well be described. What a contrast between her and the young girl standing erect and full of juicy life by her side! What a rebuke to the pride of lordly man! She was found in her hut, stretched dead by the fire, near which were several pieces of spare wood. Among the Indians the event occasioned not the slightest feeling; and, as she had no relations, it is doubtful whether she would even have been buried, had

we not taken that office on ourselves; an office which, though difficult at this time, on account of the frozen state of the ground, was necessary, to preserve her remains from the starving and voracious dogs.

The anxiety I began to feel, respecting the actual condition of the main body of the Indians with Akaitcho, whom we supposed to be in quest of deer to the westward, was so great, that Mr. M'Leod, with much kindness and spirit, volunteered to go in search of them, and by his presence encourage and incite them to exertion. He left us on the 18th of December, accompanied by the interpreter and an Indian lad, who the previous morning had received a cudgelling for thieving. The very next day, one of our men, who had been with Akaitcho, arrived with a small quantity of half-dried meat, which he had dragged eight days' march.

From him we learned that the deer were rather numerous than otherwise, but that they continued to linger on the verge of the barren lands, to the surprise of the Indians, who declared this to be the first time they had deviated from their habit of seeking the shelter of the woods at this inclement period of the year. They were very poor, he said, but plenty were shot; and would have been sent to the Fort, if the distance had been less: as it was, the persons em-

ployed to bring it would necessarily eat all or the greater part of their loads on the way, and therefore the meat was put *en cache* for our future use. All this was very well, but did not minister to our present need ; and as for *caches*, in a neighbourhood of wolvereens, I knew that little dependence could be placed on their security, however carefully made.

Still, the knowledge that the animals were within reach, and had not entirely left us, was enlivening; and though not sanguine, yet I saw no reason to despair of finally making up our original stock of coast provision. In the meantime, and before this dream could be realised, we were mortified and embarrassed by the return of the whole of the people stationed at one of the fisheries, which was described as being totally unequal to their support, having yielded only three or four fish a day for the last fortnight. Casualties such as these, coming in quick succession, were not a little harassing : my plans and prospects underwent continual change from circumstances which no foresight could anticipate; and when I thought myself most safe, I was, perhaps, in the greatest danger. However, it was of no use to sit still and mope. Action, if it had no other effect, would at least keep up the spirits of the men, and divert their thoughts from the privation which they were suffering.

Accordingly they were again divided, one party being directed to take their nets and proceed to the only remaining fishery, and the other to make the best of their way to the Indians.

Our hall was in a manner filled with invalids and other stupidly dejected beings, who, seated round the fire, occupied themselves in roasting and devouring small bits of their reindeer garments, which, even when entire, afforded them a very insufficient protection against a temperature of 102° *below the freezing point.* The father torpid and despairing — the mother, with a hollow and sepulchral wail, vainly endeavouring to soothe the infant, which with unceasing moan clung to her shrivelled and exhausted breast — the passive child gazing vacantly around; such was one of the many groups that surrounded us. But not a murmur escaped from the men. When the weather was a little milder, we took them into the store, and showing them our remaining provision, represented the necessity of their making an effort to reach Akaitcho, where their own relations would supply them plentifully: for, trifling as was the pittance dealt out to them by us, yet it contributed to the diminution of our stock, and it was evident that by strict economy alone we could get through the season at all. With the apathy so strikingly characteristic of the inert and callous savage, to whom life itself is a thing

scarce worth preserving, some declared they could not, and others that they would not go. This obstinacy compelled me to reduce their allowance, a measure of necessary rigour, which ultimately drove the stronger away, and left us more means to nourish and support the weaker. Mr. King was unremitting in his care of those who required medical aid; and often did I share my own plate with the children, whose helpless state and piteous cries were peculiarly distressing. Compassion for the full-grown may or may not be felt; but that heart must be cased in steel which is insensible to the cry of a child for food. I have no reserve in declaring the pleasure which it gave me to watch the emotions of those unfortunate little ones, as each received its spoonful of pemmican from my hand.

Christmas-day was the appointed time for opening a soldered tin case, the gift of a lady at New York; but our companion Mr. M^{c}Leod being absent, we thought it fair to postpone the gratification of our curiosity till he could participate in it; and Mr. King and I made a cheerful dinner of pemmican. Happiness on such occasions depends entirely on the mood and temper of the individuals; and we cheated ourselves into as much mirth at the fancied sayings and doings of our friends at home, as if we had partaken of the roast beef and plum pudding which

doubtless "smoked upon the board" on that glorious day of prescriptive feasting.

January, 1834. — Some Indians brought a small supply of meat, half dried and very bad; and by a letter from Mr. M'Leod, I learned that the animals had taken a western direction, which, with the coldness of the weather, precluded the possibility of the Indians following them. Mr. M'Leod himself, being a first-rate rifle shot, had by his personal exertions already assisted one party, and was going to visit another.

On the 13th, the women and children were sent to the fishery, and our own allowance was reduced a quarter of a pound each. Another supply of lean and half putrid meat was sent by Akaitcho, which was augmented a few days afterwards by eighty pounds from Mr. M'Leod. He had been to the fishery, "which," he added, "I was sorry to find unproductive, besides being burthened with a number of starving natives, who proved expensive and annoying, but are now all away. The dogs can hardly stand on their legs. For the two last weeks I have had much trouble, owing to the importunities of the Indians by whom I am surrounded. Some are strangers, but others you have seen. Many are extremely low, but I hope not beyond recovery. From what I have seen of the country, animals are scarce." At the same time we

had accounts of several deaths from famine, with a repetition of the former tales of suffering, which there were but faint expectations of bettering until the weather should be milder.

A few days exhausted our small stock of meat, and I reluctantly opened another bag of pemmican, our store of which was now reduced to less than one half of the quantity originally put aside for the sea service. Mr. King and I contented ourselves with half a pound each a day; but the labouring men whom we retained with us could not do with less than a pound and three quarters. Even this was but scanty rations; nevertheless, the fine fellows (principally artillery men), far from being moody or sullen, were always cheerful and in good spirits. It had been my endeavour to foster this feeling of contentment by general kindness, by a regular observance of the Sabbath (the service being read in English and French), and by the institution of evening schools for their improvement.

We had seen the thermometer at 70° below zero, at which time the Aurora was bright. We now made a few experiments on the effect and intensity of the cold, the results of which were as follow: With the thermometer at 62 minus, a square six-ounce bottle of sulphuric ether with a ground stopper, was taken out of the medicine chest,

exactly in the same state as it had been packed at Apothecaries' Hall, viz. with the stopper down, and exposed immediately below the registering thermometer on the snow. In fifteen minutes, the interior upper surface of the sides of the bottle was coated with ice, and a thick efflorescent sediment covered the bottom, while the ether generally appeared viscous and opaque. After having remained an hour, during which the temperature rose to 60° minus, it had scarcely changed, or, perhaps, as Mr. King agreed with me in thinking, it was more opaque. The bottle was then carefully brought into the house, and placed on a table, within four feet and a half of the fire; and though so near, and with a temperature of 32° plus, it did not recover its former clearness or purity under forty-two minutes.

A bottle of nitric ether, similar in dimensions to the sulphuric, was not changed in the same time; but after two hours' exposure it also became viscid, the temperature in the meantime having varied from 60 to 56 minus. A fluid drachm and a half of sulphuric ether was put into an ounce and a half bottle with a glass stopper; and when it had become viscous the stopper was withdrawn, and a lighted paper applied to the mouth, when it ignited with an explosion and an escape of gas. On repeating the experiment, the ignition did not take place until the light

was brought into contact with the liquid; but it was accompanied by a similar explosion.

A small bottle of pyroligneous acid froze in less than 30 minutes, at a temperature of 57° minus; as did also the same quantity of 1 part of rectified spirit and 2 of water, 1 part of the same and 1 of water. Leeward Island rum became thick in a few minutes, but did not freeze.

A mixture of 2 parts pure spirit and 1 water froze into ice in three hours, with a temperature from 65° and 61° minus. Another mixture of 4 parts spirit and 1 water became viscid in the same time.

A bottle of nitric ether having been out all night was thick, and the bubbles of air rose slowly and with difficulty; the mean temperature at 6 A.M., January 17th, being 70° minus!

A surface of 4 inches of mercury, exposed in a common saucer, became solid in two hours, with a temperature of 57° minus.

On the 4th of February, the temperature was 60° minus, and, there being at the same time a fresh breeze, was nearly insupportable. Such, indeed, was the abstraction of heat, that, with eight large logs of dry wood in the fireplace of a small room, I could not get the thermometer higher than 12° plus. Ink and paint froze. I made an attempt to finish a sketch, by placing the

table as near the fire as I could bear the heat; but a scratchy mark, and small shining particles at the point of the sable, convinced me that it was useless. The sextant cases, and boxes of seasoned wood, principally fir, all split. Nor was the sensation particularly agreeable to our persons; the skin of the hands especially became dry, cracked, and opened into unsightly and smarting gashes, which we were obliged to anoint with grease. One one occasion, after washing my face within three feet of the fire, my hair was actually clotted with ice, before I had time to dry it. From these facts some idea may, perhaps, be formed of the excessive cold. It seemed to have driven all living things from us: we had been accustomed to see a few white partridges about; but even these, hardy as they are, had disappeared. Once, indeed, a solitary raven, whose croak made me run out to look at him, swept round the house, but immediately winged his flight to the westward. Nothing but the passing wind broke the awful solitude of this barren and desolate spot.

February 9th.—A little variation was given to our society by the gratifying arrival of Mr. M^{c}Leod, who had preceded a party of men laden with meat. The weather had made a visible alteration in his countenance, which was severely frost-bitten in seven places; nor was it to be

wondered at on such a wide unsheltered lake as he had been travelling over, especially when the Indians themselves were unable to bear up against it, but were all, to the number of fourteen, similarly lacerated. The latter complained bitterly, and compared the sensation of handling their guns to that of touching red-hot iron; and so painful was it, that they wrapped thongs of leather round the triggers, to keep their fingers from contact with the steel.

The deer were represented to be plentiful enough, but so restless and difficult to approach that few were shot; added to which they were edging westerly, and when left were at a distance of fourteen days' journey from the house. Suffering, the Indian's inheritance, attended the natives wherever they went. The forest was no longer a shelter, nor the land a support; "famine, with her gaunt and bony arm," pursued them at every turn, withered their energies, and strewed them lifeless on the cold bosom of the snow. Nine had fallen victims already; and others were only snatched from a like fate by the opportune intervention of Mr. M'Leod, in compelling a Chipewyan to return after his wife and child, whom the unnatural monster had abandoned. In another instance, where two of the same tribe had deserted an infirm and starving relative,

his efforts were unavailing, for he was found dead in the woods.

For the neglect or abandonment by the more active hunters of the sick and feeble of their tribe, some allowance may be made, on account of the peculiarity of their circumstances. To follow and keep up with the migratory animals which constitute their food, is essential to the preservation, not only of the hunters themselves, but of the whole encampment. An infirm or diseased savage is not merely useless; he is a positive clog and encumbrance on the motions of the rest. No wonder, then, if occasionally, in the impatience or necessity of the chace, he is left behind to the mercy of chance. But there are instances, it is painful to say, of barbarous outrages for which no such palliation can be found. In my progress through the country, I heard several stories of transactions among the Indians almost too revolting to be mentioned. Others equally shocking were related to Mr. King; and one in particular, as narrated by Mr. Charles, the factor mentioned above, was so horrible, that, although the recital, it is to be feared, will excite loathing and disgust, yet I think it right to give it, as illustrative of the occasional atrocities of savage life.

A Cree Indian of the name of Pepper, who had long resided around Chipewyan as a

hunter, came to the Fort in November, 1832, after a temporary absence; and, having smoked his pipe, gave a plausible account of severe calamities, which had befallen him in the preceding winter. After describing the horrors of starvation in the desolate forest, and his ineffectual efforts to ward it off, he said that, worn out, at length, by hunger and cold, his wife, the mother of his children, sunk into a lethargy and died; his daughter soon followed; and two sons, just springing into manhood, who promised to be the support of his old age, —alas! they also perished; lastly, their younger children, though tended by him with unwearied solicitude, and fed for a time on the parings of their leather garments, sunk under their sufferings, and slept with their brethren. "What could I do?" exclaimed the man, with a frenzied look that almost startled the hearers, —"could I look up to the Great Spirit?—could I remain to behold my strength laid prostrate? No! no! One child was yet spared.—I fled for succour. But, oh! the woods were silent,—how silent!—I am here."

The boy alluded to was about eleven years of age, and at the close, as during the recital, kept his eyes vacantly fixed on the blazing fire near which he was seated, seeming unconscious that the narration was ended, and still listening, as if

waiting for some dreadful story not yet told. His father spoke, and he started; then, having given him a live ember to light his half-emptied pipe, he relapsed into his steadfast gaze of vacancy.

Not a word, not a gesture, had escaped the attentive ears and sparkling eyes of some men of his tribe who arrived just as he began to speak. Never was man more patiently listened to; his grief, or the long pauses which counterfeited it, were not once interrupted, except by his own wailings: but when he had concluded, a kind of hollow muttering arose from the grouped Indians; and the spokesman of their number began a speech, at first in a subdued tone, and then, gradually elevating his voice with the energy of one strongly excited, he finished by denouncing him as a murderer and a cannibal. The accused hesitated a few seconds, mechanically whiffing at his exhausted pipe,—and then, with the most stoical indifference, calmly denied the charge.

But, from that instant, his spirits fell; and the anxious and painful expression of his countenance, whenever his son was absent for a moment, betrayed the consciousness of guilt. He could no longer look his fellow man in the face.

Those who had roused this inward storm kept aloof, as from a poisonous reptile; and, having

obtained the trifling articles which they wanted from the store, returned to their hunting.

The wretched man lingered about the Fort for some time, and at length, accompanied by his boy, sulkily left it.

——— "Back to the thicket slunk
The guilty serpent."

But by a strange infatuation (such are the mysterious ways of Providence), instead of seeking some lonely place where he might have hid his guilt, and lived unmolested, he went to the lodges of the very persons whom he had most cause to avoid, —the men who had branded him as a murderer and cannibal.

He sought their hospitality, and was admitted; but an instinctive loathing, not unmixed with apprehension, induced them to request his departure. After a slight hesitation, he not only refused, but, assuming a tone of defiance, uttered such threats that the endurance of the Indians was exhausted, and they shot him on the spot.

More than one gun having been fired, the boy was also wounded in the arm; and, thinking to mitigate their rage, he fled behind a tree, and offered to confess all he knew, if they would only spare his life. His wish was granted, and then was told the most sickening tale of deliberate cannibalism ever heard. The monster had, in truth,

murdered his wife and children, and fed upon their reeking carcasses! That the one boy was spared was owing, not to pity or affection, but to the accident of their having arrived at the Fort when they did. Another twenty-four hours would have sealed his doom also.

CHAP. VIII.

Exemplary Conduct of Akaitcho.— Mr. M^cLeod and his Family leave us. — Arrival of Maufelly. — Supply of Deer-flesh. — Misunderstanding between Akaitcho and the Interpreter. —Preparation for building Two Boats. —Mr. M^cLeod's ill Success. — Strange Conduct of Two Indians. — Supply of Food. — Distressing Condition of Mr. M^cLeod. — Return of Mr. King's Party. — News from York Factory. — Uncertain Fate of Augustus. — Presence of Two Ravens. — Ravens shot by an Iroquois. — News from England. — Discharge of Three Men. — Alteration of Plans. — Appearance of Birds. — Adventures by Mr. King. —Arrival of Mr. M^cLeod. — Anxiety about Williamson. — Sultry Weather. — Melancholy Fate of Augustus.

During this appalling period of suffering and calamity, Akaitcho proved himself the firm friend of the expedition. The dawn of each morning saw him prepared for the hunt; and, aware of the heavy pressure of that distress which, though he could not altogether avert, it might be in his power to mitigate, he boldly encountered every difficulty, and made others act by the force of his example.

Complaints were incessantly preferred to him by all classes, young and old; and many would

have yielded to their gloomy superstition, had they not been sustained by his language and fortitude. "It is true," he is reported to have said in answer to one of them, "that both the Yellow Knives and Chipewyans, whom I look upon as one nation, have felt the fatal severities of this unusual winter. Alas! how many sleep with our fathers! But the Great Chief trusts to us; and it is better that ten Indians should perish, than that one white man should suffer through our negligence and breach of faith."

Mr. M'Leod's observations at the fishery where he had been were too unfavourable to give me any confident hope of receiving support from that quarter; and, under these circumstances, it was consolatory to me that he approved my decision to make a further reduction in our establishment. I say consolatory, because that decision fell particularly heavy on his own family, whom he now offered to remove to a place about half way between us and the Indians, who, he said, would provide him with meat, as the lake would with fish, and in this way the separation might be made still further subservient to our benefit. Before we parted, however, his daughter, a pretty little girl about six years old, took care to remind me, that I had promised, on her father's return, to open the "boite à fer blanc." Accordingly, the treasure was explored; and she

was not the only one who rejoiced in the sight of a large plum-pudding, to the merits of which practical testimony was borne by the children and ourselves at dinner. Nor did we forget to drink the health of our fair countrywoman Mrs. Maxwell*, who had so kindly afforded us this luxurious meal.

Mr. M'Leod, during his absence, had not been exempted from his share of privation, having been for days together without food; yet, nothing daunted by hardships, which he treated as the ordinary incidents of the service, he and his family, with two men, left us on their cold and comfortless journey, on the 14th of February, about noon. Nothing but a conviction of the importance of this measure, as regarded our future plans, should have induced me to consent to this exposure of children to the severities of so cold a month; but, as every precaution was adopted to prevent ill consequences, I entertained the hope of their getting safely to their destination.

The unexpected disasters with which the unhappy beings to the westward had been visited made me more than commonly anxious for my former companion, Maufelly, who, with a small

* The wife of Capt. Maxwell, with whom we crossed the Atlantic.

party, had gone to the south-east, and had been absent now some months. No intelligence of any kind had been received; and, as they had promised to be at the Fort in January, if alive, we naturally began to have gloomy bodings of what might have happened. Happily, however, we were now relieved from our suspense by the appearance of Maufelly himself, who, with a very melancholy visage, recounted the narrow escape they had had. There was not a track of an animal, he said, to be seen, except at a remote part, bordering on the southern waters of the The-lew, to which his party could not go. They had therefore wandered about until weakness and want had almost killed them, when the sight of some straggling deer stimulated them to exertions which were crowned by success. From his sorrowful looks, we concluded that he had hardly yet recovered from his debility; but, on closer inspection, it was clear that the rogue was in good case; and, when the necessary time for Indian etiquette had expired, he quietly communicated the joyful information that he had five deer killed for us, within a couple of days' walk.

This was, indeed, a windfall, and we ventured to think that better times were coming. Three men were instantly despatched for as much as they could carry of the precious deposit; and as

they left only my servant at the Fort, Mr. King drove the dog sledge for wood, and I made myself as useful as I could. The three men had neither snow shoes nor sleighs; and, when they got to the deep snow filling up the narrow valleys and ravines in the mountains, they were obliged to scramble across by creeping on their hands and knees. In this unsatisfactory and fatiguing manner, they neared the lodge of the Indians; who, as they slipped and sunk into the snow, at every effort to advance, set up loud and merry laughs, but did not fail, nevertheless, to make them welcome to a kettle of prepared meat when they did at last succeed in getting within their humble dwelling. For their return they were provided with snow shoes; and, having brought part of the meat, we enjoyed with a relish which may be imagined the first steak of fresh meat which we had tasted for three months.

On the 23d of February, a party of our own people also arrived, after fourteen days' travelling, with a small quantity of half-dried meat; in their journey for which, they had been three entire days without food. They reported the failure of Mr. M'Leod's endeavours to procure fish at his new station; but added, that two of the best men were going from place to place, until they should be more successful.

The worst information, however, regarded a

misunderstanding between Akaitcho and our interpreter, in consequence of which the former, it was said, had declared his intention to cease acting for us, and to dispose of his "hunt" elsewhere. In our present exigency such a resolution would have been a blow aimed at the very lives of those engaged in the expedition; at best, it was sure to deprive us of the assistance which I had calculated on receiving in the spring, for conveying our provision and heavy baggage to the Thlew-ee-choh; so that, in any view, it would paralyse our efforts and frustrate the interesting object of the undertaking.

Great, however, as was my anxiety, I derived consolation from the hope that Mr. M'Leod's influence might procure some material modification of the purpose of the unstable chief, if it failed to restore him altogether to his former friendly disposition.

The uncertainty of the means of subsistence, and the almost daily distresses and disappointments by which we were harassed, had interfered with many, and altogether marred some, of my plans; among others, the important task of preparing the materials for the construction of two light boats to take us along the coast had been hitherto suspended. The time, however, had now arrived when further delay was impossible. Accordingly, the two carpenters, with Sinclair (a

steersman), were sent to the clump of pines found by De Charlôit in September last, and directed to saw sufficient planking for the purpose.

The weather having now changed somewhat for the better, a little provision was occasionally brought from one of the hunters; and I looked daily for a large supply from Mr. M^cLeod. But, as if it were destined that matters should not go smoothly, intelligence was conveyed that far from being able to assist us, he could get neither fish nor flesh; and had, as a last resource, been obliged to transfer the men to the other fishery under the charge of M^cKay, for the preservation of their lives. In performing this journey, the poor fellows were again three days without food. Two young Indians also came to the Fort about this time, as it appeared to us, solely for ammunition. They saw that our store was empty, and must have understood our distress; but to our repeated questions as to their success, they uniformly answered with apparent indifference, "Etthen ōōlăh,"—there are no deer. Having been provided with what they required, they were dismissed, and requested to be alert in hunting; but still they answered, "Etthen ōōlăh — tāhoutăi*;" and with the most stoical composure lounged about the house, or lolled before

* "There are no deer."

the fire for full two days, receiving merely such scraps of food as we could spare them. It so happened that at the end of that time, Maufelly arrived with a load of meat, which the others no sooner saw, than they drew out fifteen tongues from a bag hitherto concealed, and placed them on the table without any remark, though we passed and repassed several times. The conclusion was, that they had as many deer in cache, and only wanted somebody to fetch them. When taxed with the folly of their conduct in so serious a case as ours, they answered carelessly that it was their custom, and still cried "Etthen ōōlăh — etthen tāhoutăi." Hoping that there was now a probability of our obtaining regular supplies from the two parties, I was less fearful of increasing my party, and directed four men to come immediately from the fishery, and assist in sledging the meat to the house. The deer were accordingly brought; yet before this welcome labour was completed, I had the mortification of receiving from the Indians on whom I had mainly depended, the unwelcome tidings that the animals had again dispersed they knew not whither, but that they would give us notice as soon as they had any thing to send.

March 13th. — The men, who had been latterly subsisting on a single fish a day, arrived according to their instructions; and that there

might be no leisure for brooding over their privations, I sent Mr. King with the whole of them, including those at the house, to drag the iron work, together with such planking as the carpenters might have ready, to a bay on the western borders of Artillery Lake, where I intended the boats to be built.

This was occupation for four or five days, and in the meantime I fervently hoped that some favourable change might take place. Nor in this instance was I deceived; for no sooner had we enjoyed the calm consolation of divine service on the following Sunday, than the yelping of a dog too weak to do any thing else notified the approach of strange feet, and I was met at the hall door by the old Camarade de Mandeville. Accustomed to see the Indians empty-handed, it never occurred to me to inquire if he had brought any thing; and after the usual bon jour, which these people have learned from the Canadians, I proceeded to explain the reason why he found me alone. "You have no provision then," said he; "tiens! the dogs are eating it;" and opening the door, to my great surprise and no less joy, he pointed to an Indian youth, who was leaning on his gun, and looking at two sledges of dried meat which the Camarade and he had dragged from their lodges, five days' journey distant.

The following day I received a further supply from Mr. M'Leod, though with the painful intelligence that he with his family were surrounded by difficulties, privations, and deaths. Six more natives of either sex had sunk under the horrors of starvation, the nets had failed, and Akaitcho, on whom he relied (for the old chief had forgotten his hasty expressions and was still faithful), was twelve days' march away. Distant, however, as he was, Akaitcho had managed to despatch some of the strongest young hunters with a supply of meat, and it was a part of this which was now forwarded to me. Mr. M'Leod's situation was one of great embarrassment. I prevailed on him therefore to sacrifice the comfort of being with his family, and to send them to Fort Resolution, to break up the fishery for the present, and stimulate the Indians to further exertion by keeping constantly near them.

March 18th.—Mr. King and his party returned from Artillery Lake, where the requisite articles had been deposited, and the carpenters had begun the boats. On the 26th a person arrived late in the evening with the packet from York Factory, which we had been expecting daily for the last six weeks. The happiness which this announcement instantly created can be appreciated by those only who, like us, have been outside the pale of civilisation, and felt the

blessing of communication with their friends but once through a long twelvemonth. Yet so true is it that

"Man never *is* but always *to be* blest,"

that before we had time to congratulate each other, our joy was almost turned into sorrow. The bearer, on delivering the packet, added, that he believed he had brought only half; that the remainder had been sent from Fort Resolution upwards of a month ago, under the charge of two men, a Canadian and an Iroquois; that these had been accompanied by my old companion Augustus, the Esquimaux interpreter, who no sooner heard that I was in the country than he expressed his determination to join me, and had actually walked from Hudson's Bay with that affectionate intention; that the three men, having no language in common, were unable to convey their sentiments to each other; and that having lost their way, two of them, after an absence of eighteen days, found their way back to the fort; but without Augustus, who they declared persisted, in spite of their entreaties, in his forlorn search. On opening my letters I found this account but too true, and moreover that the brave little fellow had with him, when they parted, only ten pounds of pemmican, and neither gun nor bow and arrows.

Three days after the arrival of this sad news the other part of the packet was brought by one of my former men, who had been guided by an Indian; and I then learned from Mr. M'Donell, the gentleman in charge of Fort Resolution, that on the arrival of the Canadian and Iroquois without Augustus, he had the same day despatched two more Iroquois with plenty of provision, and instructions to follow the same track, search for Augustus, and, if found, conduct him to us. But, strange to say, after a similar lapse of time, viz. eighteen days, these two men also made their appearance at the Fort; and Mr. M'Donell had the mortification to hear that they, like the first, had got bewildered, and having exhausted their provisions were compelled to explore their way back. An Indian, who happened to be with him at the time, was engaged as a guide to the present bearer; and he added, "I hope the packet will reach you safe at last. As no one has come hither from you, I apprehend that poor Augustus has been starved to death." There was, indeed, every reason to fear the worst; but the account of his companions, that they had heard the report of two or three guns in the direction of the place where they had left him, afforded me a feeble hope that he might have fallen in with some party, and be yet alive. As far as was in my power I circulated the fact among the Indians,

though they were unfortunately far away, and held out an unlimited reward to any who should find and save him. The ready zeal with which Augustus had volunteered to partake the hard fortunes of the service, his attachment and generous devotion to myself, and the probability that his recompence had been a shocking and untimely death, impressed me with a melancholy that for some time fixed deeply in my mind.

By letters from York Factory, we were informed that the Company's two ships were forced to winter in the bay; — one at Churchill, and the other at Charlton Island, — owing, as was said, to the vast quantity of drift ice which blocked up Hudson's Straits, and cut off all communication with the Atlantic. But I was requested to be under no uneasiness as regarded the expedition, since the letters for England were to be sent by Canada, and all my demands would be punctually attended to.

April 20th.—For the last fifteen days our habitation had been rendered more cheerful by the presence of two ravens, which having, by my express directions, been left unmolested, had become so tame as scarcely to move ten paces when any one passed them; they were the only living things that held communion with us, and it was a pleasure to see them gambol in their glossy plumage on the white snow.

A party of men had arrived over night, and amongst them an Iroquois, who, perceiving the birds together, and being ignorant of my wishes, could not resist the temptation of a double shot, and so killed them both. In any other situation such an event, would, perhaps have seemed too trifling to be noticed; but in our case, the ravens were the only link between us and the dreary solitude without, and their loss therefore was painfully felt. Moreover, there seemed a sort of treachery in the act, for the poor birds had been taught to look upon us as friends: their petty thefts were licensed; and their sharp croaking was welcome, as breaking the monotony of silence. When they were gone, I felt more lonely, and the moaning wind seemed as if complaining of the barbarity.

April 25th. — This was the anniversary of our departure from La Chine. We were talking for about the hundredth time of those kind persons who had come so far to see us away, and had begun to speculate on their different occupations at that very hour, when we were interrupted by a sharp and loud knock at the door. The permission to come in was unnecessary, for the person followed the announcement before the words could be uttered, and with the same despatch thrust into my hands a packet, which a glance sufficed to tell me was from England. "He is returned, sir!" said the

messenger, as we looked at him with surprise. "What! Augustus? — thank God!" I replied quickly. "Captain Ross, Sir — Captain Ross is returned." "Eh! are you quite sure? is there no error? where is the account from?" The man paused, looked at me, and pointing with his finger said, "You have it in your hand, sir." It was so; but the packet had been forgotten in the excitement and hurry of my feelings. Two open extracts from the Times and Morning Herald confirmed the tidings; and my official letter, with others from the long-lost adventurers themselves — from Captain Maconochie, Mr. Garry, Governor Simpson, and many other friends, English and American, removed all possible doubt, and evinced at the same time the powerful interest which the event had awakened in the public, by a great proportion of whom the party had long since been numbered among the dead. To me the intelligence was peculiarly gratifying, not only as verifying my previously expressed opinions, but as demonstrating the wisdom as well as the humanity of the course pursued by the promoters of our expedition, who had thereby rescued the British nation from an imputation of indifference which it was far indeed from meriting. In the fulness of our hearts, we assembled together, and humbly offered up our thanks to

that merciful Providence, which in the beautiful language of Scripture hath said, "Mine own will I bring again, as I did sometime from the deeps of the sea." The thought of so wonderful a preservation overpowered for a time the common occurrences of life. We had but just sat down to breakfast; but our appetite was gone, and the day was passed in a feverish state of excitement. Seldom, indeed, did my friend Mr. King or I indulge in a libation, but on this joyful occasion economy was forgotten; a treat was given to the men, and for ourselves the social sympathies were quickened by a generous bowl of punch.

May 5. — David Williamson of the Royal Artillery and two other men were discharged from the service; the former on account of continued ill health, and the latter at their own solicitation. By them were forwarded letters for England. We had now a smart thaw; and patches of green, as well as projecting parts of rocks, were daily becoming visible. Shortly afterwards a letter arrived from Mr. M^c^Leod containing information, which I had some time anticipated, of the total failure of Akaitcho and his party to collect provision — as well as a hint that the chief had been tampered

* Psal. 66.

with, and allowed a part of his hunt to go in another direction. The fact that a portion of the meat had been so diverted was substantiated, and laid to the charge of a free-man; but the quantity taken by him was too inconsiderable to be of any consequence, and afforded merely a pretext for Akaitcho, to cover some little infidelities of which, I fear, he had been guilty. A month before, such intelligence would have caused the bitterest sorrow; but now, when I knew of Captain Ross's safety, it was comparatively of little moment; and I determined at once on going with *one* boat instead of *two* along the coast, selecting the best men for my crew. This, in fact, was the only means left by which I could execute my instructions, and discharge the duty that I owed to the public; for though the enthusiasm that had before animated us was now of course much abated, it still set with a strong, because concentrated, stream, towards the region of discovery. The provision that we had still in reserve was, or could be made, equal to the expenditure of three months for *ten persons*. The smallness of the party would be more than compensated by the characters of the individuals who composed it — every man in himself a host — experienced *voyageurs*, good hunters, equal to the most trying situations. There was, therefore, no rational

ground for apprehension that we should be unable to surmount the obstacles of the voyage, though cooped within the narrow space of a solitary boat on the inhospitable waters of the Arctic sea. The people were regularly employed in dragging the pemmican and baggage to Artillery Lake, where the carpenters had already finished one and half completed the other boat; for though the original plan was relinquished, the second boat, it was thought, would be highly serviceable in enabling Mr. M'Leod to fulfil the instructions which it was my intention to leave for his guidance during our absence. And I now wrote to him, to engage as many young Indians as would undertake to carry a bag (or 90 lbs.) of pemmican each to the Thlew-ee-choh, in direct distance one hundred and fifteen miles.

On the 13th of May, a single goose, the harbinger of summer, flew past the house; and during the day it was followed by five more, all of which took a northerly direction. This was six days later than they had been seen in 1826 at Fort Franklin, though a higher northern latitude. A fly and a flock of small birds appeared in the evening; and during the three succeeding days we had gulls, orioles, grossbeaks, yellow legs, robins, and butterflies.

A small swamp behind the house was the resort of two or three kinds of ducks, some of

which were occasionally got by Mr. King, who was a daily visitor amongst them. On one occasion, just as he had hit his bird, his attention was attracted by some more in an adjacent pool; so, without staying to pick up his game, he crept towards the others, and as he thought disabled a fine drake. Eager to bag it, he waded into the water, when he was startled by a sharp whizzing noise over his head. This, he soon perceived, was caused by a large white-headed eagle, which was descending with the rapidity of lightning towards the precise spot where lay the duck he had before hit. Impelled by the desire at once to secure the bird for dinner, and if possible to get a shot at the eagle also, he instantly left the wounded drake, and, sans culottes, flew with all speed over patches of hard snow, dashing through the swamp, and arriving just in time to see the powerful marauder quietly sweep off, exactly out of the reach of shot, with the duck firmly grasped in its talons.

Having watched it out of sight, he then retraced his steps; and leaving his gun in a dry place, betook himself to the aquatic chase of the drake, which, far from being fluttered or alarmed, remained motionless, as if waiting to be taken up. Still, as he neared, it glided easily away through innumerable little nooks and windings, with all the confidence of a branch pilot.

Several times he extended his arm to catch it; and having at last, with great patience, managed to coop it in a corner, from which there appeared to be no escape, he was triumphantly bending down to take it (gently, however, as he wished to preserve it for a specimen), when, to his utter astonishment, after two or three flounders, it looked round, cried "quack," and then flew off so strongly that he was convinced he had never hit it at all. The object of the drake had clearly been to draw Mr. King away from its companion, of whose fate it was unconscious; indeed, so attached are these birds at certain seasons, that it is no uncommon circumstance, when one has been shot, for the other, especially the male, to linger about its struggling partner, exhibiting the greatest distress, until either killed or frightened away. Sometimes in such cases they will dive to avoid the shot, but refuse to fly; as in an instance where one remained to be fired at no less than five times.

On the 18th May, the catkins of the willows were half an inch long, and the snow was fast disappearing from the ground. On the 25th we also welcomed the arrival of our companion Mr. McLeod, whose indefatigable endeavours to realize the expectations held out by the Indians of procuring deer, as the warm weather increased, had been grievously disappointed. He had found

his hunters indeed as wretchedly off as could be imagined; so that the winter terminated as it had commenced. Bad as this was, the serious apprehension which he raised in my mind about the fate of David Williamson, the artillery-man, who had been so lately discharged, was infinitely worse. It appeared that he had left the fishery with his companions, and two Indians as guides; but, being a slow walker and much encumbered with useless baggage of his own, he had one day set out first, the route being quite straight; while the others, knowing that they could easily overtake him, had loitered in their encampment, perhaps an hour after his departure. Aware of his eccentricity, they were not alarmed at not seeing him for the better part of the day; but as the evening drew in, their fears were excited, and one of the Indians retraced his way, in order to be quite sure that he was not behind among the islands. His search was fruitless, and he very properly returned with the information to the fishery. Mr. M^{c}Leod lost not a moment in selecting another Indian to accompany the same person, directing them to use the utmost vigilance, and holding out the promise of a considerable reward to whoever should find him. With such an inducement, it was not likely they would leave any part unexamined; and, accordingly, after an absence of three or four days,

they returned to the fishery with the assurance that he had not stopped between their last encampment and the islands, from which the traverse is made to the south shore; on the contrary, they concluded that he had crossed over, and made the best of his way to Fort Resolution. For my own part I much doubted this; but, at all events, it was consolatory to know that he had a compass, and was not destitute of provision.

Towards the end of the month, the weather became sultry, the temperature in the sun being 106°; an extraordinary contrast to that of the 17th January, when it was 70° below zero. The snow was all gone, except that which had been drifted to a great depth in the narrow valleys, and under steep precipices; and the Al-heldessy, to the westward, had burst its icy fetters, and opened a clear channel to the portage opposite the house: loons, gulls, and ducks took possession of the water, and seemed to contend which should make the most noise; some small birds also, very prettily marked, hovered about a short time, and then both they and the ducks suddenly deserted us. Akaitcho and thirty of his tribe arrived, empty-handed, and were followed by a couple of young Chipewyans, who brought a little dry meat from the Yellow Knife River, where one of their party had died from want.

On the 3d June, the whole of the men came in from the fishery, and brought with them the melancholy tidings, that the Indians had been at Fort Resolution without hearing anything about poor Williamson, who, it was now conjectured, must have got bewildered among the islands away from the track, or met with some accident so as to incapacitate him from making a fire, and thereby indicating his situation. The remains of Augustus also had been discovered not far from the Rivière à Jean. It appeared that the gallant little fellow was retracing his steps to the establishment, when, either exhausted by suffering and privation, or caught in the midst of an open traverse in one of those terrible snow storms which may be almost said to blow through the frame, he had sunk to rise no more. Such was the miserable end of poor Augustus! — a faithful, disinterested, kind-hearted creature, who had won the regard not of myself only, but I may add of Sir John Franklin and Dr. Richardson also, by qualities, which, wherever found, in the lowest as in the highest forms of social life, are the ornament and charm of humanity.

These were not very cheering auspices for the eve of our departure; but past griefs must yield to present necessities, and the sharpness of the feeling gradually wore off under the pressure of mental and bodily occupation. By the 5th June, I

had got Mr. M'Leod, the Indians, and all the men but three, from the Fort. It was arranged that the former, with a chosen party, should precede us to hunt, and should make *caches* of meat along the line of route, so as to save the pemmican; while the other Indians, with part of the men, should assist in dragging the baggage. One Indian was left with us as a guide; but his friends were scarcely out of sight, when he began deliberately to pack up, with the intention of following them. This caprice (for he had remained voluntarily) was owing, it seemed, to distrust of the constancy of his young wife, who was somewhere to the north; and it was only by threatening to discharge him altogether from the service, that I could prevail on him to stay. We had in vain tried every allurement to induce some Indian family to remain and take care of the establishment during the absence of Mr. M'Leod: no temptation was strong enough to entice the poorest among them to accept of so dangerous a trust; all agreeing that it would be impossible to procure a livelihood there at this season of the year. No more convincing proof can be given of the wretched poverty of the country; for the people will suffer any privation short of death to obtain their favourite tobacco, ammunition, and clothing; and as it is acknowledged that an Indian can live where a wolf would starve,

the neighbourhood of our residence must be a miserable spot indeed. I was consequently obliged to trust to chance for the safety of the papers containing the observations, journal, drawings, and survey. A platform was erected in the hall, on which the remainder of our stores were deposited, and carefully secured against wet, and marauding wolvereens. Some things were lowered into a cellar, the opening of which was closed and nailed down. The stronger boxes were piled into a heap, and covered with a tarpaulin ; and a very small quantity of brandy, which we were unable to take, though not unwilling, had economy permitted, to drink, was buried "full fathom five"—then, and not till then, being considered safe from biped or quadruped, Indian or bear.

It now only remained to block up the windows and doors; which done, the four persons remaining with me, including the guide, were laden with burdens of ninety pounds each, and two dogs, equipped with saddle bags, carrying meat for the journey; and thus appointed, I left Fort Reliance, accompanied by Mr. King, a little past noon of the 7th June.

CHAP. IX.

Reflections. — Halt for the Night. — March resumed. — Obstacles encountered. — The Boats finished. — Eastern Shore of Artillery Lake. — Pursue the Track of Mr. M^cLeod. — Two Deer shot. — Stunted Pines. — Encampment. — Difficulty in tracing our Route. — News from Mr. M^cLeod. — A Snow Storm. — Fires lighted on the Hills. — Accident to Peter Taylor. — Deviate from our Course. — Accident to James Spence. — Boisterous Weather. — Plunder of a Cache. — Find the runaway Guides. — The Ice unsafe. — Enter upon Lake Aylmer. — A dense Fog. — Sand-hill Bay. — Judicial Investigation. — Animals. — Musk-ox Rapid. — Join Mr. M^cLeod. — Survey of the River. — Indians return with the Pemmican. — Stock of Provisions. — An Indian Belle. — A Reindeer Hunt.

THERE is something exciting in the first start even upon an ordinary journey. The bustle of preparation — the act of departing, which seems like a decided step taken — the prospect of change, and consequent stretching out of the imagination — have at all times the effect of stirring the blood, and giving a quicker motion to the spirits. It may be conceived then with what sensations I set forth on my journey into the Arctic wilderness. I had escaped from the wretchedness of a dreary and disastrous win-

ter — from scenes and tales of suffering and death — from wearisome inaction and monotony — from disappointment and heart-sickening care. Before me were novelty and enterprise; hope, curiosity, and the love of adventure were my companions; and even the prospect of difficulties and dangers to be encountered, with the responsibility inseparable from command, instead of damping rather heightened the enjoyment of the moment. In turning my back on the Fort, I felt my breast lightened, and my spirit, as it were, set free again; and with a quick step, Mr. King and I (for my companion seemed to share in the feeling) went on our way rejoicing.

Taking a northerly direction through the woods, we soon got into a succession of swamps; then ascended steep rocks; and subsequently gained a sight of the Ah-hel-dessy, which seemed in that part to be navigable, though, from the noise, it was certain that a heavy fall was not far distant. We passed many sand-hills, variegated by the arbutus plant, called, as I have elsewhere said, by the traders "sac à commis," cranberry and crowberry. These hills were generally hemmed in by broken cliffs of red feldspar and barren granitic rocks, with here and there thick masses of snow filling up their chasms, or sloping from the lower parts of ver-

tical precipices. A few old tracks of deer were seen near them.

The oppressive sultriness of the weather having affected my servant so much that he was unable to proceed, we halted; and as we had no tent, we took up a position for the night on a smooth carpet of reindeer moss, under the thick and spreading branches of a tall pine. A few willows growing round the margin of the small lakes we had passed were not so forward as those at the house, though the latter, probably nipped by the north-east winds which had latterly prevailed, had made little progress in the shooting of the catkins; indeed, one flower only had blown, and the green buds of the dwarf birch were but just perceptible. Whether this was owing to the accidental lateness of the season, or to poverty of soil, I cannot take upon me to determine; but it may not be out of place to mention, that some cress sown in a box, in the best earth that could be found, never came to perfection, at least in three weeks' trial, though it was carefully kept in a warm room at night, and exposed to the sun during the day. The only green observed along our route was in the arbutus and the younger firs; all besides wore the sombre brown of an advanced autumn. A smart fall of rain in the night reminded us that

we were out of our rooms; and this, or, it may be, the excitement of getting away, banished sleep from my eyes. Nevertheless, I endeavoured to cheat myself, by fancying drowsiness; and had just arrived at the falling-off point, — a kind of misty half-consciousness,—when a white partridge came burring within five paces of us, and rang such an alarum that no fewer than three heads were simultaneously popped up, to discover the cause of this unwelcome disturbance.

Our march was resumed at 3 o'clock of the following morning, by descending one side and scrambling up the other of a very deep ravine, thickly interlaced with underwood, through which we had much trouble to get our dogs; but a greater misfortune was the weakness of my servant Malley, which by 6 o'clock had increased so much as to oblige him to stop altogether. Believing that his indisposition was attributable to confinement and sedentary occupations at the Fort during the winter, and that a few days would restore him, I requested Mr. King and one of the men to stay with him, using their discretion in coming forward; while I, with the Indian and the remaining man, pushed on as quickly as possible to Artillery Lake.

Our way lay through swamps, covered with

what the Indians call women's heads, which are round hummocks of moss-covered earth, the bases of which are reduced by the action of the surrounding water to about one third of the diameter of their surface, yet strong enough, owing to the fibrous roots which they contain, to keep upright; being, in short, something like a large mushroom. In crossing the sloppy swamp, the traveller is tempted, by their dry appearance, to step upon them; but, unless he tread exactly on the centre, which is a matter of nice judgment and calculation, they invariably fall over, and down he tumbles, or gets an awkward twist; in either case plunging up to the knees, or deeper, into the swamp. My Indian was caught twice, and called out "Sass" (Bear), the well-known expression of his tribe when not inclined to be over gentle.

Acclivitous rocks intervened between the swamps; and in going over their summits, the Ah-hel-dessy was frequently seen working its rapid course along the base of the mountain range, which sometimes assumed the wildest character. The space from the spot where I had left the small canoe last year to the first rapid out of Artillery Lake was quite open, and immense quantities of ice were floating down the stream. The temperature was full ten degrees colder than at the house; large masses of ice and

snow encumbered the banks or borders of the rocks; and the ice on the lake had not decayed nearly so much as was observed at the same season of the year in 1821 at Point Lake, more than two degrees to the north.

Tracks of deer were visible at different points; and leading from these tracks the Indians had placed rows of moss on the ice, to keep the timid animals in a particular direction. In the evening we reached the bay, and found that the carpenters had just completed the boats, which, considering the knotty and indifferent material of which they were constructed, did much credit to the builders. They were precisely such as I required; being sharp at both ends, with good beam, and plenty of floor for stowage: my only apprehension was that they were weak. The one selected for the voyage was thirty feet over all, and twenty-four feet keel: extra oars, masts, tiller, &c. were prepared, and the bottom of the boat was paid over with a coating of tar. I ought to mention, also, that in conformity with my directions, the lower part was carvel, and the upper part clinker-built; for as the carpenters were neither of them strong enough to be included, however desirable it might have been, in the number of my picked crew for the expedition to the sea, I thought that, in case of accident, the former

construction would be repaired more easily, and with less loss of time, than the latter. It had, besides, this advantage, that there were no overlapping edges, which might catch against the stones in the rapids.

My first care was to despatch three smart men to assist in bringing up Malley; and at 4 P.M. the following day, the whole party arrived with Mr. King, who reported that his patient would be unable to perform any duty for several days; a circumstance untoward enough, when every man was required to drag forward his allotted proportion of baggage. Mr. M'Leod had left only two days before; and, on examining what pieces he had taken, I was rather chagrined to find that what remained was more than could be conveniently carried by us at one trip; and as the arrangements had been definitive, there was no alternative but to make two, which was, in other words, trebling the distance. The evening was passed in getting everything ready for our departure, and to each of the eight men who were to compose the boat's crew were given a new gun, powder-horn, &c.

My old guide Maufelly, with another Indian, had been selected to show us the nearest cuts, and now promised to hunt a little a-head of us. Accordingly, at 3. 30′ A.M. of the 10th of June,

the larger boat was dragged about three quarters of a mile through a half-dry swamp, and over some rocks to Artillery Lake, where she was placed firmly on runners plated with iron, and drawn over the ice by two men and six fine dogs. The smaller boat was launched into a pool, where she would be quite safe until required in the autumn. By 8 A. M. each man had his *runner* laden with something less than a hundred pounds weight; when leaving Mr. King to superintend the transport of what yet remained, I took the party forward, intending to send them back so soon as we had attained the appointed distance; which, for the accomplishment of my object, would not be less than from six to nine miles. The scene was new to every one but myself, and I took care to encourage the mirth which the grotesque and awkward attitudes of slipping people continually excited. The runners appeared to slide easily, and for half an hour a brisk pace was kept up. By degrees, however, it slackened, on account of the badness of the ice, which was literally a bed of angular spikes, of many shapes and sizes, but all so sharp as to make mere walking a most painful and laborious operation. From the same cause the runners were also peeled, or otherwise much injured; and it was easy to foresee their speedy destruc-

tion, unless timely measures were adopted to prevent it. Iron seemed to be the only effectual defence, but we had none left, except one large saw, which it was thought might answer, if the carpenters could manage to cut it into the proper breadths and lengths.

Our prospect of reaching the portage of the Thlew-ee-choh on the ice depended entirely on the soundness of our tackle, and this early assault on the wood showed me the necessity of devising some method of protecting it, either with the saw, or, failing that, with reindeer horn, bones, or binders of birch. We halted, consequently, at the end of six miles; and the people, after a couple of hours' rest, returned to Mr. King, who was desired to set the carpenters immediately to work about the saw, and to join me as soon as convenient with the rest of our provision. This, indeed, made the bulk of our baggage; for in services like this only a very limited wardrobe can be allowed; and having set the example of taking only one change of linen, flannels, and a few pair of moccassins for my own use, the others were, of course, obliged to submit to a correspondent limitation.

The eastern shore of Artillery Lake, which we now followed, was less rocky than its opposite, being composed principally of smooth rounded hills, covered with verdure and large stones, many

of which were ranged on the summits, presenting a bold contrast to the yellow sky behind. During the night the thermometer fell to 28°; and in the morning (June 11th) I took a stroll with my gun, with the double object of procuring, if possible, a change of food, and observing what effect the early sun would have upon the ice. In the first, I failed; but as to the second, I succeeded in convincing myself that it would be injurious to the men, and very soon knock up the dogs, to persist in travelling through the heat of the day; and that it would be better, therefore, to reverse the order of marching and rest, and to take advantage of the fresh air of the night. In the afternoon Mr. King and his party arrived, having succeeded in converting the pit saw to the purpose required. All were immediately at work in shoeing their respective runners; after which, having rested until 9 P.M., we started again.

To husband the pemmican, which, from the want of other provision, was already in consumption, I was desirous of following, as nearly as possible, the track of Mr. M^{c}Leod, who had been instructed to put conspicuous marks wherever he had made a cache for us. But, as this would necessarily lead us round all the bays of the main shore, and greatly increase the distance and fatigue of the journey, I deter-

mined on undertaking it myself, with one man selected for the purpose, leaving directions with Mr. King to proceed with the boat, &c. in a straight line from point to point, until he should see signals to guide him to the caches, or to encamp. The air was keen, even to freezing; the ice hard, and galling to the feet. Indeed, the sensation was like that of treading on sharp palisades: but the runners now slipt smoothly over it, and opposed considerably less resistance to the men, who began to talk of carrying heavier loads, so as to avoid the fatigue of returning for the baggage left behind at every encampment. The land had a uniform and uninteresting outline, with here and there a dark clump of pines, though these began now to be less frequent. After four hours' brisk walking in the night, — but not in the dark, for it was quite light all the time, — we stopped at the mouth of a small river, the banks of which it was thought might produce a little wood; and on inspecting some recent marks, the place was found to have been an encampment of Mr. McLeod. The sun rose at 2. 15′ A.M. due north by compass. The boat arrived safely, but somehow or other the men had contrived to break the runner; so having harnessed the dogs to single sledges, they were despatched to the carpenters with orders to take the present

and only opportunity of supplying themselves with what wood might be required for the reparation of the sledges, &c. By 10 A.M. all the things were brought.

During our march five deer and some geese had been seen, but no other animal, except two mice, which were making a rather hazardous traverse across the ice; one little adventurer of the same family was found dead (apparently drowned), at the distance of a full mile from the nearest land. I had been trying for a trout in the river, and happening to espy in the sand an old copper kettle, much bruised, I had the curiosity to take it up; and hearing something rattle within, I had it forced open, when it was found to contain thirty-four balls, a file broken into three pieces, an awl, a fire-steel, and a crooked knife. This, to an Indian valuable property, had apparently been thrown away, according to the custom unfortunately prevailing with that people, either as an expiatory sacrifice for some calamity, or as a token of extreme affliction for the loss of a wife or child. At 9 P.M., the boat's runners having been repaired, and the dogs' feet cased with leather shoes, we recommenced the route; and soon afterwards being attracted by some stones piled upon an island, from which bits of moss laid in a line led to the shore, I expected to have discovered a

cache; but my attendant (a half-breed) and I sought in vain for the wished-for treasure: we saw, indeed, an Indian encampment, where a deer had been killed, and the traces of a sledge near the shore, and hence surmised that our store had been pilfered. Before morning, however, we were compensated for the disappointment by the acquisition of two deer, shot by Sinclair and Taylor.

June 13th. — The few trees now met with were stunted pines, from three to six feet high, spreading much at the base or near the root, and generally dead at the top. They were seen only on sand-hills, near small rivulets, or (very rarely) on some moist declivity. The double trips fatigued the people so much, that I acquiesced in their request to be permitted to take additional burdens, and travel more slowly, on condition, however, that they were to make good a greater distance each journey; and at the usual hour this plan was put into execution, and appeared likely to answer. Some marks led us to a cache; and again, at midnight, we found a second, the meat of which I caused to be placed on the ice, so that the main party might not be drawn aside from their course.

The eastern land now became broken into bays so irregular in their form as to lead us more than once astray, and occasion some diffi-

culty in finding the right track; indeed, the continued absence of Maufelly and his companion was what I had not calculated upon, though I still hoped they would be found at an appointed place, near the entrance of the next river.

We encamped this day (June 14.) at the point of a large opening leading to the eastward, and the greater proportion of the men came up in tolerably good condition, considering the badness of the ice, the spikes of which were just soft enough to allow the runners to cut through, instead of sliding over it, increasing thereby the labour of getting along. It was past noon when the carpenters, who were always the last, arrived; one of them was so affected by the glare of the ice as to be almost unable to see, and would fain have excused himself on that account from taking any share in the work. He had, however, brought the evil on himself by not keeping pace with his comrades in the night march, which he could well have done, as he had a much lighter load to drag, and his strength was unimpaired; so, notwithstanding his complaints, he was obliged to take hold of a cord made fast to his brother's sledge, and to drag his burden as usual. Indeed, squeamishness is little heeded in such travelling as this, and shirking is quite out of the question. I could not dispense with

the duty of a single individual, as an exact distribution had been made of the baggage, from which any deviation might have seriously affected our future operations: each day's distance, moreover, was marked out, and it was only by a rigid observance of these arrangements that I could expect to reach the Thlewee-choh on the ice. In short, in my case, as I have elsewhere said, pity for temporary ailments might be felt, but was not to be expressed; the restraint, however painful, being absolutely indispensable.

In the course of the night the weather became overcast and threatening; and being perplexed as to the most direct route, from the seeming continuity of the land to the eastward, as well as the deep bays and strange sand-hills in the same quarter, I made for two dark points that stood out boldly from the opposite western shore, in the conviction that the track would either be found there, or that I should recognise some objects which might lead me to it. The sky was extremely lowering, with a cold northerly wind; and a small sleet falling, made the ice so slippery that the dogs were much fagged. The points, when reached, proved not to be islands, as I had conjectured, but the extreme promontory of an extensive bay. I therefore ascended the highest hill near me, and per-

ceived that we were actually on the western main shore; though, so great is the difference between a summer and winter prospect, and so deceptive an appearance does the snow give to heights, that I could not, by any strain of memory, recollect the outline of a single part, the whole being, in fact, entirely changed. Nevertheless, we were fortunate enough to hit upon the right course; and, after some hard walking, were stopped by a ridge or barrier of ice and a lane of water, which compelled us to make a long détour before the line of route could be recovered. In doing this, we got sight of two sand-hills, which I remembered; and about 4 A. M., June 15th, we encamped under the shelter of a high rocky hill, about a quarter of a mile from the river, at which we expected to find the Indians. Had they been with us, much of the late tedious and unsatisfactory march would have been avoided, greatly to the benefit of the feet of all the party; for this continual walking on spikes was certainly doing severe penance, and most sensibly did we feel that two thirds or more of the original distance was yet to be performed.

Snow showers ushered in the morning; and, when these cleared off, it was seen that we were on the borders of a swamp, caused by the melting of the snow from the upper lands, which, from

the ground underneath being frozen, collected into pools, that slowly discharged themselves into the lake. There was not the least sign of vegetation, for the sun as yet exerted little influence over the cold and barren soil. Divine service having been performed to the men assembled in the tent, the journey was resumed by the line of the river. A partial channel in its centre induced me and my attendants to keep to the right bank, which, though it receded to the eastward, offered nevertheless, somewhat higher up, a shorter cut to the other side, the river at the place where we were being of considerable width. The channel, however, led us much farther round than had been anticipated, and finally ended near a small rapid, which my party forded; but as a serious loss of time would have attended the attempt to follow us, I hastened back, and directed the boat and sledges to return to the mouth of the river, and go along its western bank. In the meantime my party kept to the right, and, on their way, saw occasional traces of Indians, at places where they had been fishing. The ice was more or less decayed, and shelved from the banks, where it was four feet thick, becoming much honey-combed towards the middle, where it dipped into the open water of the narrow channel formed by the current. Walking, therefore, was painful and

dangerous; for so slippery was the surface, that the nicest caution was required to keep our footing, and a single false step would have sent us sliding into the stream. As some defence to the soles of the feet, I placed pieces of undressed buffalo skin with the hair on between two pair of moccassins and thick blanket socks, and obtained by this means sensible relief; though, even then, Peter Pindar's pilgrims, and the happy thought of "boiling the peas," presented themselves more vividly to my imagination, than they had ever done before.

About 1 A.M. of the 16th, on turning a point, we discerned in front of us the usual mark of piled stones, and soon increased our store with two deer, a quantity just enough for as many days' consumption. I learned from a note, that Mr. M'Leod's party were living upon the chance of the day, feasting or fasting, as it might happen, with seldom enough and never too much; but that this was the fifth cache he had made, so that we had passed two unnoticed. Nor, under the circumstances which have been mentioned, could this be wondered at, though, as may easily be believed, a keen look-out had been kept. Deer, it was added, were scarce; but the Indians held out hopes of overtaking large herds in the course of a few days, and for that purpose intended to make a straight route to the next lake, keeping

along its western shore, in which line I should find whatever they were fortunate enough to kill.

The many interruptions of the ice, over which the boat had to be dragged, caused frequent delays, and it was late before she came up. Here, therefore, we encamped; and after a short repose, proceeded to caulk the boat in several parts, to prepare her for the water, which was now sufficiently unobstructed to admit of her being towed along shore.

The morning was gloomy in the extreme, and snow fell so thick as to cover the hills again with their wintry garment. By 5 P.M. the boat was ready, launched, and every thing stowed in her, the bow and steersman alone remaining on board, while the others hauled her along with a tracking line. The water was a great deal lower than in the autumn, so that, on arriving at the first rapid, some trouble and waste of time were experienced in ascending its contracted and furious torrent. Once the boat grounded, the line broke, and only by jumping out was the bowman enabled to save her from being driven on the rocks; and such was the immense force of the water, that it was not until she was lightened of her cargo that the men succeeded in hauling her up. In doing this, they were obliged to pass along the margin of the ice nearest the stream; and, though five others had done so in safety, yet the sixth

(Carron) broke through, and sunk over head: his next companion fortunately looked behind him at the moment, and on his re-appearance instantly seized him by the arm, and saved him from being swept away by the current. The weather, always cold and gloomy, soon became squally, which, at about 9 P.M., settled into a storm of sleet and wet snow, coming from ahead, which, driving upon our faces, so injured our eyes that we were frequently compelled to turn round to shelter and recruit them. A second rapid was gained, and, the channel about it being interrupted by ice, the former plan of dragging the boat on runners was again resorted to. In less than an hour, a third rapid made it necessary again to launch her, which having surmounted, we got fairly on the lake, not far from the island where, last season, I had made my cache of pemmican. It was here that I depended on finding our two Indians; and, as they might be either asleep or hunting, I encamped, to give them an opportunity of seeing the white tent, which, on the barren lands, was a conspicuous object.

The thermometer stood at 33°, with snow, and a raw cold wind that pierced through us in spite of cloaks or blankets. It was two o'clock in the morning; and, as I had not yet dined,

certain internal gnawings began to intimate the propriety of supplying the organs of digestion with some occupation which might keep them from quarrelling among themselves. Oh! thought I, for a cheerful fire, and a warm comfortable meal! Accordingly, having managed to collect a beggarly account of wet branches, we applied ourselves, with laudable zeal, to ignite and blow them into a flame. The moss and shrubs were saturated, and would not burn; but it was fondly imagined that, by dint of perseverance and relieving each other quickly, the dwarf birch might be importuned into a blaze. We puffed, and it smoked — again, and it lighted—still more, and it went out: the puffing was renewed — it looked cheerful, and wanted only a *little more* coaxing. "The least thing in the world," said one, blowing gently, though at the distance of a yard. "Mind what you 're about," cried another, — "there! it will go out, — it's all over." "Oh! get out of the way, let me come," bawled a third; and thrusting himself forward, applied himself to the work with such vigour and force of lungs, that the few embers yet living flew scattered about like the sparks of an exploded cracker. "We cannot make a fire," said my servant to me, who had been latterly a passive though not an uninterested spectator of the proceeding; "but I

have brought you *some pemmican and a little cold water*, Sir."

As the Indians did not make their appearance by the following noon, the men were sent to light large fires with the moss, which by that time was dry on the neighbouring hills; a well-understood signal, which, if they were within sight, would immediately bring them in. I was the more anxious about this, as, without their assistance, on a lake of such magnitude as the one before us, and so full of intricacies as to have more than once, on the expedition of last year, bewildered Maufelly himself, we could not hope to find the way correctly, at least without vexatious delays and many useless perambulations. In summer there would have been perhaps little difficulty; but it was now like a strange country, for so complete is their transformation that the natives themselves, accustomed as they are to the character of the country, sometimes go astray. To have followed the main western shore would have greatly increased the distance, and, indeed, would not have answered, since the Thlew-ee-choh lay to the eastward of north, and at a part where the traverse is so wide that a free horizon intervenes between the opposite shores. Under these circumstances I determined, if the Indians should not come, to make as straight a course as was

consistent with the bends and windings of the land. To give them a further chance, for it never entered into my imagination that they had deserted us, I remained all night; and this the more readily, as the weather was so cold as to make it desirable to court the pale sunshine of the day.

At length, wearied with waiting, we commenced the journey at 10 A. M. of the 18th June, in the accustomed line of march, except that I now preceded as guide, having deputed others to look out for the caches. The thermometer at 36°, with a strong N. W. gale blowing, made it necessary to defend the eyes from the sharp drift that beat upon them; and going entirely from memory (for, depending on the Indians, I had not thought it worth while to bring my last year's survey), I can ascribe it only to good fortune that I hit upon the right course, in a part so narrow that the current, which was perceptible, had already forced an open passage. On the borders of this narrow grew a few straggling willows, and I had nearly run against one before I perceived a note for me stuck into a notch of a projecting branch. It was to apprise us that two caches had been made in a bay just passed; and, although I thought it likely they would be picked up by those behind, yet, to avoid disappointment, I sent Peter Taylor, one of my party, with the

note to Mr. King. He, wishing to shorten his distance, ventured on some dark ice (at this season generally rotten), which gave way; and, but that he was a very active fellow, and kept hold of his gun, which stretched across the hole, and so prevented his going under, he would certainly have perished. Mr. King found one of the caches, and despatched a couple of light hands after the other.

It was easier to launch the boat, and pull her as far as the narrow went (about a quarter of a mile), than to drag her along the shelving slips of ice on the banks: this done, she was again placed on the runners, ready for the following day; after which we encamped. A flock of geese, some gulls, and two loons were playing about in the open water, but cautiously remained far out of shot. A partridge that I shot was quite white, though those about Slave Lake, near the Fort, were partly brown before we left.

The night was bleak and cold, with the same N.W. gale, accompanied by showers of sleet and snow; and so thick and forbidding was the morning of the 19th, that we did not attempt to move before noon, when, encouraged by a gleam of stray sunshine, we determined on setting forward. Accordingly, Mr. King went to direct the men, who were a little apart from us, to get ready; and, to his surprise, found

them all snug under their blankets, quite unconscious of the march of time. We were soon off; but met with great inconvenience, as well as hazard, in consequence of the snow having fallen in such quantities as to render the good and bad ice undistinguishable, and reduce it to a lottery whether we fell through or not. Luckily, nothing more important befel us than an occasional dip up to the knees; and, as a set-off, marks, stretching far out on the ice, led us to two fine buck deer, which had been shot by Mr. M'Leod himself.

I was not at all certain of the route at this point, remembering that last year we had gone astray hereabout; and after a tedious march of doubt and perplexity, I ascended a hill, and discovered that we were too far to the eastward. The course was therefore changed six points, though upon no better ground than personal recollection, which, for the reason before stated, viz. the altered appearance of the country, was but vague and indistinct. The spot where we were seemed to be about equally distant from the numerous indentations of the land, in any one of which the course might lie, and the great similarity in the outline of which made it difficult to select one in preference to another; indeed, our oldest *voyageurs* confessed themselves unable to determine which was most

likely to be right. In this uncertainty I made for a bluff bearing N. W.; and, finding no passage at its base, I ascended another high hill, whence I saw a black line of open water, which appeared to come from the direction of the narrows leading into Clinton-Colden Lake. This supposition was soon after agreeably confirmed by the discovery, near the spot which I have before described as the Deer Pass, of a rich cache, containing more than three whole animals, with a note written by Thomas Hassel, a pure Indian, who had been educated at Red River, and engaged by me as an interpreter.

The water and wind together had so wasted the ice near the bank here, that not unfrequently we had to lift the boat and sledges over dry stones and rivulets to get to the next sheet; and the sheets themselves were so rotten, that on one occasion James Spence fell through, and got a complete ducking before he could be pulled out. But the worst was, that this rough highway strained the runners; several of which were already in so indifferent a plight, that we should have thrown them away, if we could in any way have supplied their place. However, the people worked cheerfully, and at 8h. 40m. P. M. we encamped, and immediately set about repairing the runners.

As we were now about to traverse Clinton

Colden Lake, it was material not only to our comfort, but to our successful progress, that we should have fine weather; and many a look was cast to windward to read our fortune in the face of nature. But the N.W. gale continued unabated; and the morning of the 20th was squally, dark, and cold, with heavy showers, which contributed more than any thing to the decaying of the ice, and making it unfit for travelling on. There was no change at noon; but as every hour was of consequence, an effort was made to head the gale, which was with difficulty accomplished, the boat being driven greatly to leeward, even with the assistance of extra men bearing up against her. The ice was exceedingly rotten, and twice all but sunk with us (for in this state it does not break short), a danger which we endeavoured to avoid by running quickly and with a light step over it. The sledges, though heavier, were in less danger, because covering a larger space.

I took a direction more westerly than that of Maufelly last year, hoping by so doing to shorten the way; in fact, it was matter of mere chance whether, even if I tried, I should succeed in tracing his route through a labyrinth of islands; so that I rather trusted to the compass and my general recollection for groping out the way. In the meantime, the weather got worse,

and the assistance of every man was required for the boat, Mr. King taking charge of some of the sledges. Nor was it without the most laborious, or, as they called it, *killing* exertions, that she was at length hauled to a shelter under the lee of a rock, which, though it seemed at the distance like the boundary of a bay, was found to open upon a large expanse of lake. As it was now about full moon, we looked for a favourable change of the weather, not without some anxiety; for I was apprehensive that, with the constant drenchings and fatigue together, two or three of the weaker hands might be laid up. But the night was more boisterous than ever, and never was seen a more gloomy sky than that which ushered in Midsummer's-day. It was of a leaden grey colour, with horizontal streaks of dirty brick-red clouds—except to the north, where, in strong contrast with the cold whiteness on which it rested, were accumulated, in one black mass, all the horrors of an hyperborean winter. Hail, snow, and rain pelted us, one after the other, for some time without respite, and then only yielded to squalls that overturned the tent. I watched till noon for some propitious omen, but watched in vain; so, having encouraged the men to stick to their work, we again tried what could be done, though with little expectation of making more than a few

miles. At this part the lake was so wide, that between the openings of the land there was everywhere a clear horizon. With alternate spells and haltings to rest, we gradually advanced on the traverse; and were really making reasonable progress, when pelting showers of sleet and drift dimmed and confused the sight, so as to render it an extremely perplexing task to keep even near the course. Towards evening it cleared to windward, and showed us an island, which, though partly covered with snow, I thought I remembered. Accordingly, we went there, and were gratified by observing some marks which removed any doubt about the route. The boat arrived late, and the men complained of being tired. "However," said the poor fellows, "we should not mind that, if the sun would only shine for us to dry our clothes." Fatigued as they were, the marks were followed; but, in this instance, the cache had been plundered — by whom was never discovered.

A break now and then in the sky gave some token of a change, and by midnight the wind had much abated; but it was only to rage and howl with more violence as the sun rose, bringing along with it snow and sleet so thick as to darken the atmosphere, and limit our view to a few paces before us. In short, it was more like a dreary day of December than of midsummer.

It was impossible to move; and being Sunday (22d June), divine service was read in the tent, where, to the credit of the men it should be mentioned, notwithstanding the wet and discomfort to which they were exposed, they all came shaved and clean.

At length the gale wore itself out, and long lulls, with now and then a feeble moan, showed that its strength was nearly spent. Nevertheless, the morning of the 23rd of June was unpromising and dull; but as the distant land was visible, I lost not a moment in starting. It was from this island that, in our autumnal excursion, we had been compelled to make two or three tours of islands and bays before our guide had been able to discover the hidden passage of the Sand Hill, connecting this lake with the next. The farthest land was seen about N. W. by N. at an immense distance; and though the line was to all appearance perfectly continuous, yet from an impression that on the former occasion we had kept to the left, I now made for the S. W.; and, having traversed a wide opening, suddenly came upon fresh marks that pointed to the horns of rein deer fixed on the top of a heap of stones. Mr. M^{c}Leod, it seemed, had left only on the 18th, having been detained by collecting the meat, which, notwithstanding his care, had suffered no inconsiderable mutilation from the wolves.

The cache was most welcome, as, but for this seasonable supply, we must have opened the pemmican that night. It consisted of deer and musk oxen, both very poor, and the latter strongly impregnated with the odour to which it owes its name. This was so disagreeable to some of the party, that they declared they would rather starve three days than swallow a mouthful; which coming to my knowledge, though not spoken within my hearing, I thought it right to counteract the feeling, and accordingly ordered the daily rations to be served from it for our own mess as well as theirs, and took occasion to impress on their minds the injurious consequences of voluntary abstinence, and the necessity of accommodating their tastes to such food as the country might supply.

The similarity of the extensive openings right and left made me again hesitate where to direct my steps; but, aware of the deception arising from overlapping points, I ultimately persevered in my first idea, though against the opinion of my party, who thought we were going into a bay; nor, indeed, was I by any means certain, until some rotten ice, and a lane of open water following, indicated the narrow of which we were in search. All doubt on this score was soon removed by a long line of marks leading to another cache, which, with the former one, made a total of eleven animals to-

day. The weather was now clear and warm, the thermometer being 66° in the sun, and 54° in the shade; so that not only were the dogs panting from heat, but as the snow was made slushy, and the surface of the ice softened, there was great difficulty in dragging the boat along at all. However, by 9 P.M. the whole party came up, and we encamped.

The tent was not well up before the report of a gun on the opposite shore attracted our attention to two Indians, who, on a nearer approach, proved to be the runaway guides. They were the bearers of a note from Mr. M'Leod, who very properly insisted on their returning to me immediately. Their story to him was, that being ordered by me to hunt a little in advance, and finding no traces of deer, they could not resist the temptation of accompanying some of their friends whom accident threw in their way; and as for my requiring a guide, they never so much as thought it possible, because I had always my "little sun," meaning the compass, which I had only to ask, to be informed of the direction of any part of the country.

June 24th.—A warm day was so great a novelty, and so much needed, that I rested, for the purpose of enabling the men to dry their clothes and blankets, and getting observations myself for time and latitude. To collect a few willows

that were growing on the opposite side it was necessary to cross the détroit; and the strength of the ice being unequal, owing to the under current, several of the party broke through, and, amongst others, Mr. King, who fortunately recovered himself, however, before his chronometer touched the water. Towards evening distant thunder was heard; and though the breeze had blown from the S. E., an appearance of steely dark clouds to the N. W. intimated that rain might be expected from that quarter. Accordingly, just as we started at 8h. 15m. P. M. there was a brisk shower, but without thunder or lightning. The decayed and unsafe state of the ice rendered it advisable to launch the boat, and transport the baggage to the next solid piece, which was a little beyond the conical mound called the Sand Hill. Opposite to this sand-hill above fifteen Indians and their families were encamped: they formed a part of those whom we had supplied with ammunition and other articles, to help them to make the best of the summer; but so proverbially improvident are these miserable people, that nearly the whole which they had received was already lost or expended; a few had two or three charges of powder and ball, but by far the greater part had to depend on their bows and arrows or the uncertain chance of fishing. We were informed by them, that

many of the Yellow Knives and Chipewyans, who were carrying our pemmican to the Thlew-ee-choh, had either eaten or made away with a considerable portion of it; not by reason of any deficiency of provision, since they had abundance, but from sheer indolence or wantonness. Our guides also again annoyed us by their mulish conduct; for though directed to hold themselves in readiness to accompany us, when the moment of departure came one was absent hunting, and the other was quietly lounging on the bank, wrapped in his blanket, and smoking his pipe with all imaginable unconcern. I ordered him, with some signs of impatience and displeasure, to equip himself, and come with me without delay, which order was silently obeyed after we had been kept waiting a full hour.

As for the other absentee, I threw the responsibility of his conduct on his old father, making him answerable for the appearance of his son, within the next forty-eight hours, with the bag of pemmican which had been entrusted to his care. Nor did I entertain the least doubt that the requisition would be punctually complied with, as he well knew that in default he would thenceforth be scouted from our establishment. Indeed experience had taught me the advantage of assuming and maintaining an air of superiority over the Indians. There is no need of unkind-

ness or severity; all that is required is a steady firmness, and never overlooking an attempt at deception, however plausible. No people scrutinise more narrowly the behaviour of those with whom they have to deal; and if they once perceive that they cannot lie or equivocate without detection, they will cease to make the attempt, though, from a natural propensity to falsehood and the habitual character of their speech, they will do so to a stranger most gratuitously.

Our guide led us in a tortuous direction, among the black and rotten ice, and frequently halted to try its strength by pressing on it with his feet, or striking it with the handle of an axe; but such over caution—proper enough, if we had had time—ill accorded with my anxiety to get quickly forward: and on such occasions afterwards, Peter Taylor (a half-breed) boldly led the way across any suspected place. Still, constant impediments presented themselves in some shape or other, from open water, ice, or snow; but all were happily surmounted: and when we had made a short portage across a point of land, we came to another cache containing five musk oxen and a deer. The latter only was taken, the remainder being left to be converted into dried meat, for the supply of Mr. M'Leod's party on their return.

We now entered upon Lake Aylmer, and made for a detached and rounded mass of rock

forming an island in the distance. Here we would gladly have stopped, had there been moss enough to make a fire; but this not being the case, the route was continued, at a rate that made me wonder what had called forth this sudden and extraordinary spirit of emulation. I was obliged to put my best leg forward to keep up at all; and, when we halted for encamping, I wiped my brow, and asked where the deer were which we had been chasing, or why they had started off at full speed, as if the "manito," or evil genius, had been behind them? After a pause, and looking at each other, the Indian said he thought Taylor was trying how fast he could walk, and Taylor said he was sure the Indian wished to pass him, which he was determined he should not do; so that it seemed I had been assisting at a foot match; and the people behind were four hours in coming up to us. Passing showers had fallen during the march; but when the wind died away into a calm, the rain fell in torrents, and the under-stratum of soil being frozen every hollow was transformed into a pool of water, the accumulation of which overflowing in a thousand little rills gradually undermined the tent, which, unfortunately, had been pitched on a declivity, and finally insinuating themselves between the blankets, awoke

me in the middle of a first nap. The sun had not risen, or at least was not visible, and I much question if the most rigid Mussulman would have enjoyed so early an ablution. Nevertheless my companion, Mr. King, seemed to heed neither rain nor flood; for having espied a herd of deer on an adjacent hill, he composedly put on a blue cloak and set off after them; and though he got no deer, he brought back some fine plover.

The 25th was dark and gloomy, but our stray Indian failed not to come in with the pemmican. A fog, that had been more or less prevalent for the last fourteen hours, became rather thicker as night drew on; but having now my guides, and judging that the men would suffer less in travelling than from lying inactive in their wet clothes, I started at 10 P. M. The Indians, always timorous, kept close along the land, and fixed us constantly amongst the bad and unsafe ice, which now resembled spikes from two to three inches long. Shoes were soon perforated, as well as the pieces of rein-deer skin with the hair on which had been fastened round them as a slight protection to the feet. The party with the boat very wisely kept farther out, and had consequently better ice, the surface of which was like a bed of madrepores, except that the upper edges were considerably sharper.

Capt.n Back R.N. June 25.th 1834.

Engraved by E. Finden

Crossing Lake Aylmer &c &c

About midnight the guides hesitated to proceed, on account of the dense fog: they thought they had already erred, and affected to be fearful of misleading me; but to this pretence I quickly put an end by directing the route with the compass. It must be confessed that the travelling was by no means agreeable; for to say nothing of the darkness, the fog almost wet us through, creating a chill which exercise was unable to overcome.

A wild rocky point which we made I recognised as one of my last year's encamping places, and was not a little glad to find that we were within one march of Sand Hill Bay, where our labours on this lake would terminate. About a mile further we stopped, and the boat arrived at 7 A.M. of the 26th.

Throughout the whole of this day not a gleam of sunshine came to cheer our spirits or dry our wet clothes; on the contrary, we had a weary continuation of gloomy weather, and rain in torrents. The night was yet more forbidding, and when the usual time of departure came we could not distinguish objects a hundred yards off. Under such circumstances to continue the route was impossible. All were drenched to the skin, and no fire could be made; but the men, with great resignation, making the best of their damp lodgings, looked

about for the most sheltered place to lie down: some wrung their blankets, while others, as a last resource, put on their whole wardrobe, in the hope of a little warmth. These precautions, however, were ineffectual; for in the morning the greater part found themselves in pools of water, which their own weight had brought down on them from the higher surface. I happened to see one of them awake, and could not help laughing at the sudden jerk with which he withdrew his right hand out of the puddle in which he had unconsciously placed it.

The morning of the 27th was still foggy; but a prospect of clearing to the N. W. encouraged us to start, and about noon it became fine. A fresh cache afforded a seasonable recruit to our provisions, which would not have held out beyond this day. It was a joyful sight to see Sand-hill Bay, and to know that we were now within a few miles of that water which was to carry us to the Polar Sea. As we neared the portage of the Thlew-ee-choh a white tent was distinguished, with a crowd of people around it; and this, of course, proved to be Mr. M^{c}Leod and his party, who scarcely expected us so early. The badness of the weather and the distance from which his men had to fetch the meat had caused two days of detention, for which I was not sorry, as it gave me the

opportunity of investigating the truth of the report about the pemmican.

There had been much exaggeration, but the charge was not altogether without foundation, as one man confessed that he had given his wife a sound drubbing for having taken some; with this exception, however, neither Mr. M'Leod nor the interpreter would believe that the bags had been touched, an opinion which could not then be put to the test of an examination, as the Indians were dispersed. Among the number of the accused was a Chipewyan called Jack, who, on being interrogated, merely pointed to his bag, and asked if it was in any way altered, or looked as if it had been opened. "And for what reason," said he, "should I do so? Have I not as much and more than I can eat? And if it were not so, have I been so long with the chief as to take his property without leave? No, I am not a thief; I know white men better." This was spoken without any appearance of ill-feeling; but when he learned that a Yellow Knife had accused him, his countenance settled into a sullen frown, that bespoke determined revenge. Merely saying that he "would see him," he remained silent, and in the evening went away with Mr. M'Leod, who was to push on for Musk-Ox Rapid, and send his men back to our aid if he thought we should require

them. It was late before the boat came; and the men and dogs being fagged, for it was hard work, we encamped. A number of mice (lemmings) were seen, and some killed. There was this difference in them, that one kind had long skinny ears of a lobe shape, whereas the others had an orifice only. They were dissimilar also in colour, and in their tails; but both fought with a half-bred terrier, and frequently bit it.

The morning of the 28th being fine, I obtained sights which corroborated those taken the previous year on the same spot. Having ordered every thing to be taken out of the boat preparatory to dragging her across the portage, about a quarter of a mile in breadth, to the Thlew-ee-choh, my astonishment may be conceived when information was brought me that the carpenters would not answer for the consequences of such a step, as the wood of which she was built was too soft to allow of her being dragged over that or any other portage. This was the first time that any such notion about the quality of the wood had been intimated; for otherwise, though it might have cost us incredible trouble, a different and tougher kind should have been procured from Fort Resolution, or even farther, had I been only apprised in due season at the house; nor could I now understand the matter at all,

as the same man had built my last boat on the former expedition under Sir John Franklin; and certainly a more efficient one was never turned out of hand, as was demonstrated by the fact of her reaching England, and having, as I believe, again gone out with Captain Ross. It was a *contretemps* for which I certainly was not prepared; and my only chance of surmounting the difficulty was the possibility that the crew might be able to carry her, though to effect this (never previously contemplated) it was necessary to cut away the wash-boards, which had been purposely riveted to the gunwales, to enable them to support the pressure. The moment of lifting the boat up was one of intense anxiety; and it is impossible to describe the burst of my feelings, when I saw the men walk away with her. The task, however, though successfully accomplished, was a severe one, and taxed their strength to the utmost. Twice one of the best men of the party declared he knew not if he should stand or fall when, from the inequality of the ground, the weight pressed particularly on him; and all were greatly fatigued. The reflection that the same operation would be impossible when the wood had become saturated and heavy with water, was not calculated to excite sanguine emotions: however, I trusted to circumstances, my own resources, and the spirit and stamina of

the crew, determining not to anticipate evil, or yield to fears that might never be realised.

At 1 P.M., the boat was launched upon the Thlew-ee-choh; but as the river was open only in and about the shallow rapids of the upper parts (for the lake at its source, as well as a smaller one about two miles farther down, were yet firm with solid ice), it was unavailable for any purpose of transport; even when quite light, it was not without trouble and a good deal of waiting that the boat was floated, or lifted over the shoal parts of the first three rapids. These passed, the men who had charge of her returned for their baggage to the other end of the portage; but this method, in our case unavoidable, occasioned so many delays that it was very late before the task was completed, though the direct distance accomplished did not exceed four miles.

June 29. — The baggage was again carried to the border of a small lake, where, after the boat had been made use of to set us on the ice, the sledges and runners were again tackled, and we proceeded as before until we reached the extremity, having picked up on the way a cache of two deer. At the next portage we landed: the baggage was carried over, and the boat taken down the rapids, three of which followed in quick succession. The thermometer rose to 64°; and a warm southerly wind soon brought

heavy rain which overflowed the low swampy ground that declined to the river, swelled the brooks and rivulets to a depth that made it hazardous to wade across them, and in other ways considerably harassed the portage work. Having traversed another small lake with the sledges, we encamped at the head of a long rapid and portage, to save the pemmican from getting damaged by the rain, which fell without intermission or check throughout the whole day.

A few partridges, some deer, and numbers of lemmings were seen; and I remarked that the latter burrowed under the roots of the dwarf birch, and sometimes of the willow, in preference to the large stones on the plain, possibly to obtain more cover from the piercing eyes of their great enemies, the white and brown owls. The willows were without catkins, or any budding at the extremities of the branches.

June 30. — The labour was resumed at an early hour, though the sky was still enveloped in mist or fog; but the immense boulders, half blocking up the narrow parts of the rapid, presented impediments which greatly increased the difficulty and the tediousness of our progress. Taking with me a couple of hands, I preceded the party; and having got on the ice by means of the boat, we soon came to a cache of three deer which were placed on the track. Passing

Icy River on the left, more marks were seen and other meat found; and while we were occupied about it, the interpreter, accompanied by several Indians, came from the hills, having left Mr. M'Leod to follow their companions who were before. Leaving a note containing directions for the proper disposal of the meat, we went on, and in about two hours overtook the other men who were brought to a stand by the weakness of a bar of rotten ice that bent most ominously in whatever direction it was tried. However, we had come too far to recede, and one part was at length discovered that with careful placing of the feet on the whiter, and therefore stronger, protuberances, was cohesive enough to bear the weight of a single person,—who, having first passed himself with the end of a line fastened to his sledge, got upon the firmer ice, and then with a sudden jerk twitched his load across after him. On gaining the narrows that lead into Musk-Ox Lake, our progress was cut short by open water ahead, as well as along each bank. It was too deep to ford; so having jumped together upon a piece of ice about twelve feet long and eight or ten broad, and then detached it by cutting a line with the axes, we made a sort of natural raft, which we ferried over, with the same axes and the tent poles for paddles. A great deal of snow yet encumbered

the eastern side of the hills, and two snow birds were seen which had not changed their wintry plumage; yet the mosquitos, at a temperature of 40°, were quite lively enough to execute with their usual skill the neat operation of cupping. About the time that the boat arrived, we were joined by our friend M'Leod. He remained with us through the night; and gave an account of his hunting excursions, in which the superiority of his rifle-shooting had, it seems, perfectly astonished the Indians: as well it might, for at that work he would have rivalled a Kentuckian.

July 1.—As we had now overtaken the Indians, it was useless to hurry on, and I gladly permitted the men to rest till noon. The boat then took us to the ice on Musk Ox Lake, and at 4 P. M. we reached Musk Ox Rapid, the point from which I had returned the previous year. Several Indians who were encamped here paddled to us in their small canoes, and assailed our ears with the familiar but annoying cry of "Etthen-oolah, Etthen-tā-hoūty,"—no deer, the deer are gone away; and begged I would give them a little tobacco, for they were "hungry for a smoke." It appeared that the scarcity of animals had driven Akaitcho a short distance to the north, where he was forced to live upon the flesh of the musk ox, the flavour of which is not a

delicacy even to a Yellow Knife Indian, who certainly is not fastidious in his taste.

Soon after we encamped, Mr. M'Leod's party also came up, thus uniting our force; and, as there was still daylight, a part of the baggage was carried forward, and the boat safely moored in the eddy below the upper rapid.

July 2nd.—Some Indians with pemmican were yet missing; having, as it was supposed, loitered behind to hunt: the rest were directed to go with the interpreter, and deposit their respective charges at the north end of the portage, there to be released from their servitude—an intimation which was received with wonderful satisfaction, as they were yet puzzled to comprehend why we should take such pains to plunge into the dangers which they considered as assuredly awaiting us. The desire to rescue our fellow-creatures from calamity or death, and still more the thirst of enterprise and the zeal of discovery, were notions far beyond the conception of these rude children of nature, whose only desires are for food and raiment, and whose pity is a merely animal sympathy, which ceases with the presence of the object that excites it. It seems a harsh assertion, yet I have met with very few indications of what may be called pure benevolence among these people. Akaitcho himself may, perhaps, be an exception: but in

general, the motive, secret or avowed, of every action of a northern Indian is, in my judgment, selfishness alone.

The length of the portage being four miles, the people were occupied all day in carrying the baggage, which gave me an opportunity of verifying my former observations, as well as of obtaining the dip.* The survey, which, it may be remembered, terminated here the preceding autumn, was now continued; and, taking Mr. M^{c}Leod for a companion, I followed the course of the river for a few miles onward. After a bend to the westward, it pursued a serpentine and rapid course to the northward. About two miles down, it was joined by a large stream from the westward, which I am inclined to consider as the main branch of the Thlew-ee-choh, but which the Indians distinguished by the appellation of the Contwoy-to River, calling the one we came by, Thlew-ee-choh. Be this as it may, there seems no doubt that this western branch does take its rise in Contwoy-to, or the Rum Lake of Hearne; which lake was fully identified by the Indians present as that whose western extremity Sir J. Franklin's party crossed in the first overland expedition at Belanger's Rapid. They spoke of two outlets;

* Appendix.

and some who had been there described the lake as one extensive and uninterrupted sheet of water: they also agreed in stating that it was at a considerable distance, and I subsequently heard that two smaller lakes intervened between that and the Thlew-ee-choh.

A line of rapids which the boat ran led us to an opening or small lake four miles broad, bounded on the north by a ridge of blue mountains, named after my lamented friend Captain Peter Heywood, R.N., which cut the lake at a right angle. The centre, and, indeed, the greater part was covered with ice; but a channel of open water on the eastern shore gave me hopes that we should not long have occasion for the sledges.

July 3d. —Two Indians were despatched this morning in search of those who were yet absent with the pemmican, whom having found a few miles off, they conducted them to the encampment with their burdens. This precious article, which, from the commencement of the winter to the present moment, had been a continual subject of anxiety to me, was now counted and examined, and most happy was I to learn that, to all appearance, it had been brought without injury or spoliation, except in the solitary instance already stated. The husband of the offender had himself given the information, and he now expressed a

wish that the act of a bad woman might not be the means of his losing the promised reward for carrying it; "for," added he, "I beat her well; and if you do not believe me, ask those who stood by. Oh! she has a bad head—Sass! That very evening she went away from my lodge; nobody knew where. Two nights I remained silent; but as she did not come on the third, fearing she might be lost, some of us went in search of her, and, after a long and fatiguing walk for miles in every direction, and looking in every nook and cranny that we could see—would you think it? we found her hid among the large rocks close to the lodge. Oh! she has a bad head! but I drubbed her well—Sass!" The poor fellow evidently regarded this summary chastisement as an expiatory offering to appease our resentment.

We had altogether twenty-seven bags of pemmican, weighing about eighty pounds each; two boxes of maccaroni, some flour, a case of cocoa, and a two-gallon keg of rum: an adequate supply, if all good, for the three months of our operations. It does not become me to enlarge upon the difficulty and danger of transporting a weight, all things included, of near five thousand pounds over ice and rock, by a circuitous route of full two hundred miles; but, when the pain endured in walking on some parts, where the ice

formed innumerable spikes that pierced like needles; the risk encountered in others, where, black and decayed, it threatened at every step to engulph us; the anxiety about provision, and the absence of a guide for a considerable part of the way: when these and other difficulties are taken into consideration, it will, perhaps, be conceded that the obstacles must be great which cannot be surmounted by steady perseverance. The Indians who, for hire, afforded us material help, were not more astonished at their own voluntary subjection to our service, than at the sight of a boat, manned with Europeans and stored with provision of the southern country, floating on the clear waters of the barren lands.

The weather was thick and foggy; and the picturesque lodges of the natives, constructed in the rudest manner, often of two or three skins thrown over a few short poles or sticks carried for the purpose, extended in the indistinct mist upwards of a quarter of a mile. Groups of dark figures huddled together under these imperfect coverings — others crowded in front of Mr. M^{c}Leod's tent, or standing round the poor embers of a fire at which our kettles were doing slow duty, presented, altogether, a striking and interesting spectacle. In the midst of one of these groups was my old acquaintance and Indian belle, who will be remembered by the

readers of Sir J. Franklin's narrative under the name of Green Stockings. Though surrounded by a family, with one urchin in her cloak clinging to her back, and sundry other maternal accompaniments, I immediately recognised her, and called her by her name; at which she laughed, and said "she was an old woman now," — begging, at the same time, that she might be relieved by the "medicine man, for she was very much out of health." However, notwithstanding all this, she was still the beauty of her tribe; and, with that consciousness which belongs to all belles, savage or polite, seemed by no means displeased when I sketched her portrait.

The scarcity of animals in the neighbourhood created no little doubt in the minds of the hunters as to the best route to be taken on their return with Mr. M'Leod to the Fort; and they had half decided on going a day's journey to the north to kill musk oxen, when the fog clearing away discovered the branching antlers of twenty reindeer spread over the summits of the adjacent hills. To see and pursue was the work of a moment, and in a few minutes not an active hunter remained in the encampment. It was a beautiful and interesting sight; for the sun shone out, and lighting up some parts cast others into deeper shade; the white ice reflected

millions of dazzling rays; the rapid leapt and chafed in little ripples, which melted away into the unruffled surface of the slumbering lake; abrupt and craggy rocks frowned on the right; and, on the left, the brown landscape receded until it was lost in the distant blue mountains. The foreground was filled up with the ochre-coloured lodges of the Indians, contrasting with our own pale tents; and to the whole scene animation was given by the graceful motions of the unstartled deer, and the treacherous crawling of the wary hunters.

CHAP. X.

Instructions to Mr. M°Leod upon our Separation. — Meet with Akaitcho. — His Lodge. — Imminent Danger to the Boat. — Akaitcho's friendly Caution. — Embarkation. — Heavy Storms. — Our Crew. — Geological Features of the Country. — Obstructions from the Ice. — Perils from a Series of Rapids. — Plunder of a Bag of Pemmican. — Obstacles on our Passage. — Boisterous Weather. — Deer-hunting. — Observations. — Deviation of the River. — Desolate Scenery. — Detained by the Ice. — Cascades. — Land-marks. — Contraction of the River. — Baillie's River. — Flocks of Geese. — Tact requisite in Command. — Precipitous Rocks. — A Fox. — Esquimaux Marks. — Bullen River. — A Storm. — Lake Pelly. — Conjectures of an Indian. — Encampment. — View of the Country. — Further Obstructions. — Observations. — Lake Garry.

It was now unnecessary for Mr. M°Leod to proceed farther; and it was satisfactory to me, at parting with him, that I could make over a tolerable stock of dried meat for his party, which would consist of ten persons and fourteen dogs, otherwise entirely dependent on the success of the hunters who were to guide them.

At 10 A.M., July 4th, the boat was sent off

with the sledges and half the cargo to the ice on the lake; and I availed myself of this last occasion to repeat the substance of our former conversations respecting the duties that would be required of him during my absence; the most important of which were, his going to Fort Resolution for the stores, to be sent there by the Company, and the building of a house for a permanent fishing station at some place to be selected by himself. I also delivered into his hands an official letter, requiring him to be again on the banks of the Thlew-ee-choh, by the middle of September, so as to be in readiness to afford any assistance to my party that unforeseen misfortunes might render necessary. Finally, I returned him sincere thanks for the zealous attention with which he had fulfilled my wishes, as well as for his general kindness to every individual of the expedition. By this time the boat had returned, and with a hearty farewell, I embarked for the ice.

The boat was soon put on the runners, and, together with the baggage, conveyed to the other side of the lake; when, the water being open, she was again launched, to avoid accidents only half the cargo being placed in her. The river, flowing from the lake, cuts through a chain of craggy rocks and mountains, thickly strewed with boulders and debris, but with

sufficient pasturage in the valleys and down the declivities to attract musk oxen and deer, which are said to resort to them in spring and autumn in vast numbers. An increasing current brought us to a strong rapid and fall, with an island in the centre; and just above it, on a moss-covered rock, we perceived Akaitcho's son and another Indian, waving and shouting to warn us of the danger, which, however, we had already perceived. The luggage brought on this trip being now landed, the boat was sent back for the remainder.

Akaitcho had chosen this bleak tract for his hunting ground, and had pitched his lodge on the very peak of the highest hill, a few miles off; which being too distant for me to visit, I sent him some tobacco and other presents, with a request that he would detain his young men at his lodge, as we were too busy to talk. Scarcely, however, had I returned from taking some bearings, when I saw the old man and several others close alongside. The interpreter declared he could not prevail on him to remain, for that as soon as he heard that I was there, he left his lodge, saying, "I have known the chief a long time, and I am afraid I shall never see him again — I will go." The boat had now arrived; and the rest of the men being busied in making the portage, she was pushed off with four good hands, quite

light, to run the fall. Unfortunately the steersman kept her rather too much to the left; in consequence of which, after descending the first fall, she was drawn upon a shelving rock, forming part of the ledge of the second: this brought her up with a crash which threatened immediate destruction, and called forth a shriek from the prostrate crew. The immense force of the water drove her farther on, so that she hung only by the stern. The steersman jumped on the rock; but though he maintained his footing, he could not lift her off: he jumped on board again, whilst I called out and made signs for the men to go forward into the bow, and be ready to pull the larboard oars. Amidst the confusion this direction was not attended to, and, in an instant, her stem was swept round by the large fall. I held my breath, expecting to see her dashed to shivers against a protruding rock, upon which a wave five feet high was breaking directly before her; but, happily, the steering oar had been only half laid in; and, taking the rock, it twirled her broadside to the rapid, which then carried her down without further injury. The water being pumped out, it was found that she did not leak; and this being so, I was, upon the whole, not sorry for the adventure, as it not only gave the men a memorable proof of the strength of these clear-water rivers, but afforded me an occa-

sion for cautioning them against running any rapid for the future, without first studying the lead of the current.

The river appearing to be free from ice, as far as could be discerned from the heights, I thought it unnecessary to take all the spare people on with me, and therefore left the interpreter with others to remain at Akaitcho's lodges until the carpenters, who were wanted to inspect the boat, should return with further instructions for their guidance. Seeing that I was about to depart, Akaitcho looked very melancholy, and cautioned me against the dangers of a river which he plainly told me none of the present race of Indians had the least knowledge of: especially did he warn me against Esquimaux treachery, which, he said, was always perpetrated under the disguise of friendship; and "when you least expect it," added he, "they will attack you. I am afraid I shall never see you again," he continued; "but should you escape from the great water, take care you are not caught by the winter, and thrown into a situation like that in which you were on your return from the Coppermine, for you are alone, and the Indians cannot help you." Having endeavoured to quiet his apprehensions by acquainting him with my intended precautions, and my determination to keep to the river in the event of any accident to

the boat, which could only happen by the special permission of the Great Spirit, in whose keeping we were as safe as if we had a score of boats, I recommended him to collect plenty of provisions for me by the autumn, and in two moons and a half to look beyond the mountains for the smoke of my fires on our return. Then, shaking him by the hand, I stepped into the boat: it was half loaded; and pulling down stream we entered a small lake, whose western shore led to a narrow channel formed by an island with a rapid on either side. The one which we ran was rather shoal, but the boat did not ground; and having rounded the north end of the island, we encamped at a clump of willows on the eastern shore, which offered every convenience for drying and caulking her. In the space of an hour, the whole of the cargo was brought without dogs or sledges; and the boat being turned up to dry, we were rejoiced to see that the bottom was uninjured, having been merely scraped in one place. The thermometer to-day was 56° with a light breeze from E. by S.

It is remarkable that for near a month past there had not been two consecutive days of fine weather; and now as we hoped the charm was broken, the clouds began to gather with the declining sun, and by midnight assumed an aspect so decidedly stormy as not to be mistaken.

It really looked as if that watery saint, old Swithin, had taken it into his head to leave his favourite abode in England, just to travel north a little, and was then on his passage hereabout. However this may be, the rain poured, and the wind blew, first in hollow gusts, then in loud squalls, and last of all in a downright heavy gale sufficient to have laid low the pride of the tallest and stoutest pine in the forest: as it was, its fury was thrown away, the only trophy of its prowess being the upsetting of our tent, though secured with a rampart of heavy stones, and the carrying off of one of my moccassins. Not the less, however, did it continue to rage, and throughout the whole of July 5th the boat was untouched; nor was there the least abatement on the following day, which, being Sunday, was devoted to the exercise of our religious duties, during the whole performance of which I observed with great pleasure that the men paid the most decorous attention. This state of weather could not last much longer without deluging the country; and on the 7th the storm gradually moderated, got drizzly, and finally spit only at intervals, still loth, as it seemed, to leave off. At last the sun peeped faintly through the grey clouds, and at his setting lit up a hope of better times. The boat was finished, and the carpenters, with an Iroquois, who had been purposely kept

to accompany them, were dismissed, and desired to return with the other men with all possible diligence to Mr. M^{c}Leod.

July 8th. — There was still rain, but a break in the clouds indicated something of a change; and I had the boat launched and laden with her cargo, which, together with ten persons, she stowed well enough for a smooth river, but not for a lake or sea-way. The weight was calculated at 3360lbs., exclusive of the boat's covering or awning, masts, yards, sails, spare oars, poles, planking, and the crew. The latter, as now finally reduced, consisted of —

James M'Kay,	Highlander	-	Steersman.
George Sinclair,	Half-breed	-	Do. & Bowman.
Charles M'Kenzie,	Highlander	-	Bowman.
Peter Taylor,	Half breed	-	Middlemen.
James Spence,	Orkney	-	Middlemen.
John Ross,	Highlander	Artillery-men.	Middlemen.
William Malley,	Lancashire	Artillery-men.	Middlemen.
Hugh Carron,	Irish	Artillery-men.	Middlemen.

Besides Mr. Richard King, the Surgeon, and myself.

At 10 A. M. we pushed from the shore, and found the rain had caused a rise of full eight inches in the river, which varied in breadth from two hundred yards to a quarter of a mile, as long as it kept between the rocky ridge of the mountains, a distance of about six miles. In this part, I remarked the same characteristic features

of gneiss and porphyritic rocks, with large fragments and boulders on them, as Dr. Richardson* describes as presenting themselves in the neighbourhood of Fort Enterprise and Point Lake. Many of these rocks were broken into cliffs and precipices, which faced to the east. Numerous regular gullies, or what might once have served for tributary channels, cut the river with considerable uniformity east and west. The beds of most of them were half filled with earth, stones, and moss, together with some few willows, whose small and tardy leaves were just beginning to look green. A wide and deep channel that was passed terminated in a rapid, which having first carefully examined, was run with a full cargo, and brought us to a small lake perfectly free from ice. This lake is remarkable, as forming the northern boundary of the Heywood chain of mountains, which here slope off into inconsiderable and regular hills, so thickly strewed with grey rocks and stones as to have the appearance of an immense quarry with loose rubbish about it. The river now became contracted, and formed an easy rapid, upon the northern bank of which I made our first cache of pemmican, nearly opposite to a little sand-hill. The stream soon became wider, and opened into a lake so completely blocked up with ice as to arrest our progress, and at 6 P.M. we encamped.

* Appx., Franklin.

M^c^Kay and Sinclair were immediately despatched, one on either side of the lake, to find out the most likely part for getting through. But while they were absent, a light breeze from the N.W. sprung up, and opened a channel along the western shore, barred only by two pieces of ice, which were jammed against the point nearest us. Through these a passage was cut; and on the return of the men, who, I was sorry to hear, had seen another lake covered with ice, the boat was hauled carefully on, and for three or four hundred yards we were enabled to use the oars; a shift of wind then closed the heavier masses ahead; but, by cutting and poling, we ultimately succeeded in reaching open water, and at $1^h\ 30^m$ A.M. again pitched the tent. As the boat leaked a little, she was left in the water; and, to prevent her getting damaged from the floating ice, the men slept in her.

In the morning of the 9th there was more rain, so that we did not get away before 10^h A.M.; when it fortunately happened that a narrow opening was formed inshore, and allowed of our crossing to the eastern, which was the weather side, where there was a lane of water as far as the low points allowed us to see. A little more than an hour's pulling, however, took us to the end of it; and we found that a reef of large stones, cased in ice,

divided it from another lane. This ice being in shallow water, was porous and rotten, so that it yielded to the united effect of the axe and the weight of the men; and, at the expiration of an hour and a half, the boat was got through, though not without some awkward scrapings.

An easy rapid, and the shelving shore of a sand-hill, rather encouraged the hope that the river would turn out favourably; but that illusion was soon dispelled by a very long rapid immediately succeeding, where the boat was only saved by all hands jumping into the breakers, and keeping her stern up the stream until she was cleared from a rock that had brought her up. We had hardly time to get into our places again, when we were carried with considerable velocity past a river which joined from the westward; a rapid then followed; after which another tributary was observed coming from the same quarter.

The hills in that direction did not exceed three hundred feet in height, and often not fifty; but they had the same sterile appearance, and were spotted with the same dark fragments of rocks or stones as those already passed. On the eastern side sandy banks were frequently met with, which gradually rose into acclivities, or gently sloping mounds, with small streamlets winding round their bases, affording pasturage

to musk oxen and deer. The latter scampered away as we approached, but the former stood stupidly gazing at us: luckily for them, we were not in want of their carcasses.

An island, near the centre of the river, with thin columns of mist rising suspiciously at quick intervals on each side, made it necessary to land. Having ascertained that there was, as had been expected, a fall, we carried the baggage below it, and the boat was then brought down in a manner which convinced me that M^c^Kay and Sinclair thoroughly understood their business; for, by dexterous management in the rush of the fall, they avoided the principal danger, and the boat swept into the eddy with the ease and buoyancy of a water-fowl. The stream was very irregular in its dimensions, for it was now a quarter of a mile broad, and continued so for nearly three miles, when it contracted into two hundred yards, and, running in a serpentine direction, formed a series of no less than five rapids, augmented by two streams from the westward. A still sheet of water, bounded to the right by mounds and hills of white sand, with patches of rich herbage, where numerous deer were feeding, brought us to a long and appalling rapid, full of rocks and large boulders; the sides hemmed in by a wall of ice, and the current flying with the velocity and force of

a torrent. The boat was lightened of her cargo, and I stood on a high rock, with an anxious heart, to see her run it. I had every hope which confidence in the judgment and dexterity of my principal men could inspire; but it was impossible not to feel that one crash would be fatal to the expedition. Away they went, with the speed of an arrow, and in a moment the foam and rocks hid them from my view. I heard what sounded in my ear like a wild shriek, and saw Mr. King, who was a hundred yards before me, make a sign with his gun, and then run forward. I followed, with an agitation which may be conceived; and, to my unexpressible joy, found that the shriek was the triumphant whoop of the crew, who had landed safely in a small bay below. I could not but reward them with a glass of grog a-piece, and they immediately applied themselves to the fatiguing work of the portage, with as much unconcern as if they had only crossed a mill-pond. It grew late before this last task was accomplished, and then Malley was missing. Some of the men were despatched in search of him; and at length he returned, heartily tired with rambling among swamps and rocks, having lost himself in consequence of deviating from the course of the river. Such incidents (among *voyageurs*) generally afford

a name to the spot where they happen; so, to conform to the usage, I called this Malley's Rapid.

On opening another bag of pemmican to-night, the upper part was found to be mouldy, as if it had been wet: on removing it, a stone was found, and a further examination led to the discovery of layers of mixed sand, stones, and green meat — the work of some rascally Indian, who, having pilfered the contents, had adopted this ingenious device to conceal his peculation. And well indeed it must have been managed, since it had escaped the experienced eye of Mr. M'Leod, who considered the whole to be in good order. As it was now uncertain whether we might not be carrying a heap of stones instead of provision, every bag underwent a severe probing, and, much to our satisfaction, the remainder proved sound and well-tasted.

For five days the sun had been visible only thrice, and this night and the morning of the 10th were so rainy, that, with an intricate piece of water before us, we did not venture to stir, until a short respite tempted us to try what could be done. The rapid was wedged in between two hills that forbade all landing in case of an accident: so to guard against consequences, as far as possible, I had the guns, ammunition, and instruments carried, and thought it advisable to

direct the same precaution to be observed at every rapid throughout the river navigation. We had but just started when the rain poured down as usual, bringing with it a cold northerly wind, and a fog which, shutting out from view the rocks under water, added to the difficulty, already sufficiently great, of worming out a passage in a strong current, broken by shoals and sharp stones so as not to allow of a moment's indecision. Another rapid and a portage took us to what would have been still water, had not the wind crested it with white waves considerable enough to prove the buoyancy and dry qualities of the boat, which, considering how deeply she was laden, took in very little water. The only peculiarity in the scenery was the striking contrast of the white sand-banks with the irregular rocky hills in the distance, which were of a gloomy greyish hue, scarcely enlivened by the dull green of the vegetation with which they were thinly covered Occasionally we passed some low islands, and many deer were feeding in the prairies on either side. From a narrow we emerged into a wide space, which various cliffy banks to the left induced me to think would take a bend to the westward; but, on getting there, an opposite current was found, which was subsequently discovered to be owing to the junction of another large river. The fog

then became so dense, that the nearest land was concealed from our view; and perceiving that we were drawn towards a rapid, we pulled hastily for the shore, and encamped. The magnitude of objects, as is well known, is increased in such an atmosphere; and some ice that still adhered to either side wore so formidable an aspect that, together with the roar of the rapid, it made us really glad to be safe on shore.

The 11th commenced with heavy rain and a gale from the N.W., which did not lull throughout the day; we were consequently prevented from moving, as the boat could not be taken down the rapids on account of the spray hiding the rocks, as well as the impossibility of keeping her under control. Instead of decreasing with the decline of the sun, the gale freshened, and became far more boisterous. Neither did the morning of the 12th bring any change for the better: the squalls were more violent; and even with the shelter of a high bank, the tent was with difficulty saved from being swept down. In the former expeditions farther west, we had never experienced an extraordinary quantity of rain; indeed the contrary might rather have been remarked; and if it sometimes blew more fresh than usual, the gale seldom lasted more than twelve or twenty-four hours at most, and was generally followed by fine warm weather. But here was a combination

of foul and boisterous weather, a very chaos of wind and storm, against which it was vain to struggle.

July 13th was still hazy with showers, but my patience was exhausted; and at 5 A.M. we started, and found ourselves in what might be called a continuous rapid, which after a few miles was joined by a stream from the left, divided at its confluence by an island near the centre. Near this was a lake, ruffled by a head wind, against which we had some difficulty in making way. Two or three hundred deer, and apart from them herds of musk oxen, were either grazing or sleeping on its western banks, which looked green and swampy, and were all more or less cloven by inconsiderable ravines, with a clayey surface. These soon disappeared in the rising ground, which, broken by isolated rocks naked and black, had its boundary in a semicircular range of irregularly shaped hills.

For the first time in nine days the sun shone out in the morning, and I eagerly took occasion of the welcome visit to get sights; whilst in the meantime our hunters, unable to resist the tempting neighbourhood of so many animals, and fidgetty to try their new guns, were allowed to go in pursuit, with the express stipulation, however, that they were not to fire at the does or the last year's fawns. In less than an hour they

returned with four bucks, which were just beginning to get into condition. The change of food was palatable enough to all parties; but as we had abundance of provision, and the boat was already too much lumbered, I discouraged all such pursuits for the present.

The result of the observations gave the latitude 65° 38′ 21″N., and longitude 106° 35′ 23″ W. This, as to the former, agreed very well with the dead reckoning, but gave the latter more to the eastward. Having examined a line of deep rapids that had a clear lead, we did not hesitate to run them with full cargo, and in so doing passed some singularly serrated and rugged hills, which, stretching from the limit of view in round and naked masses, dipped into the water with a curiously diversified stratification at an angle of 170°. A white wolf, some geese, and partridges with young ones, were observed here. A small tributary came in from the left, and thence the river spread itself into several branches, which not a little puzzled me; though, as we were then situated, the right channel for our purpose was obviously that which trended to the westward of north. Accordingly we pulled towards that branch, and shortly opened a view to the S. E., so extensive that the extreme distance was definable only by a faint blue line.

I was a little alarmed at such a syphon-

like turn; yet I endeavoured to persuade myself that the river would not ultimately deviate so very far from its original course, and went on to the western inlet. However, as we advanced the opening assumed a more circular appearance, and the altitudes of the boundary hills became more and more equal and unbroken, until at last, when we got fairly to the entrance, it was evidently only a bay. But though it could not be concealed that a range of low mountains, stretching in a direction N. W. and S. E., seemed to oppose an insurmountable barrier to the onward course of the river in the direction of my hopes, yet, as there was one part unexamined, where a strong ripple with white waves had been seen, I was unwilling to abandon all hope until it had been ascertained what that ripple was. Accordingly a party crossed overland, and soon saw that the foam was caused by a heavy rapid which fell into the river at that part. My disappointment and uneasiness may be conceived. All my plans and calculations rested on the assumption of the northerly course of the river; but this determined bend to the S. E. and the formidable barrier ahead seemed to indicate a very different course, and a termination not, as had been anticipated, in the Polar Sea, but in Chesterfield Inlet. However, be the issue what it might, Hudson's

Bay or the Polar Sea—I had no alternative but to make for the S. E. We were at this time little more than a degree to the southward of the confluence of Back's River with Bathurst's Inlet; but all hope that this river would prove identical with the Thlew-ee-choh, or that the latter would trend to the westward, was utterly extinguished. Our proximity to the coast, however, explained the cold and dreary weather which had lately incommoded us.

A fresh and fair wind now relieved the men from the labour of the oars, and we ran under the foresail (a lug) until 8 P.M.; when, being stopped by a ridge of ice reaching from shore to shore, directly athwart our course, we hauled into a deep bay, and secured the boat in snug shelter under the lee of the weather land. The temperature had scarcely varied from 42°, and there was a chilliness in the wind which blew from the coast that made cloaks and blankets very acceptable. Towards the close of the day's journey the country assumed a more mountainous and imposing appearance, but continued rugged and desolate. Many parts bore a close resemblance to the lava round Vesuvius, the intermediate spaces being filled up with green patches of meadow, which literally swarmed with deer, not fewer than twelve or fifteen hundred having been seen within the last twelve hours.

14th of July.—During the night, the wind

veered a couple of points to the northward, and increased to a gale, which made it impossible to move with our cargo. But, wishing to ascertain if there was any prospect of a lead through the ice inshore, the boat was sent quite light, with directions to the steersman to land, and examine the whole length along the western edge; and, at the same time, to see if the nature of the ground would allow of our making a portage. At 8 A.M. he returned, with a report that the ice was closely packed, with so heavy a surf running that any attempt to approach it might stave the boat; while the land side, he said, was equally impracticable, owing to the unevenness of the rocks. There was, therefore, nothing left, but to remain patiently until a change of wind or its violence should demolish the ice and make a passage for us. This accordingly was gradually effected, and about sunset we had the satisfaction to perceive a clear space, so far as could be judged up to the blue land in the distance. We now, therefore, only waited for an abatement of the gale to take advantage of this good fortune.

The night was squally; but the wind having somewhat moderated, we got away at 5 o'clock on the following morning, July 15th, the thermometer then standing at 38°. The stream still carried us to the south-east, and though the different bays and openings to the westward were

anxiously examined, in the hope that a passage might be found through one of them, the land was found continuous, and still bore to the eastward. By 10 A.M. the mountains had dwindled to hills, which soon gave place to sand-banks, especially to the right; an ominous indication of the future course of the stream. The lake, which I have named after my friend Captain Beechey, visibly decreased in breadth; and at length discharged itself by what, from the loud roar that was heard long before we got to it, was conjectured to be a fall, but which was found to be in fact an awful series of cascades, nearly two miles in length, and making, in the whole, a descent of about sixty feet. The right bank was the most favourable for a portage, which we commenced without loss of time, while the two steersmen were despatched to examine the falls. Their report was, "that it was possible the boat might be got down, but they did not see how she ever could be got up again;" a consideration of no great moment yet, when we were not out of walking distance from the house, whatever it might become afterwards. Accordingly, having completed the portage, and made another cache of pemmican and fat, to which was added a spare oar, the trial was made with the boat. She was first lifted over some obstacles, and then lowered cautiously down the different descents;

and so alternately lifted, launched, and lowered, until she was safely brought to the eddy below, which being also rough, she was finally hauled on the gravel. The observations to-day gave the latitude 65° 14′ 44″ N., longitude 106° 0′ 53″ W., and variation 39° 12′ E.; so that it appeared we had got considerably to the southward and eastward of our position two days before. The country was still composed of the same variety of rocky hills and swampy prairies, though the latter were far more extensive, and, near the cascades, might be called plains, all thickly inhabited by deer.

July 16th.—We embarked before 4 A.M., and a strong current carried us to a broad part of the river, which, I was rejoiced to see, took a sudden turn to the northward; but at a detached conical hill, somewhat farther on, it again bent suddenly to the southward, and, as there was no passage perceptible at its farther extremity, the crew jocosely said we should be sucked under ground. However, an extremely sharp angle led us between cliffs in a contracted channel into a rapid, at the foot of which it was necessary to land to avoid another, the waves of which were too high to allow of its being run with the cargo. When lightened, the boat ran it uninjured. A loud roar of rushing water, heard for the distance of about a mile, had prepared us for a long line of

rapids, which now appeared breaking their furious way through mounds and ranges of precipitous sand-hills of the most fantastic outline. Some of them resembled parts of old ruins or turrets, and would have offered pleasing subjects for sketching. The course of the river became afterwards more tortuous, and its clear blue tint yielded to an olive green, more or less dark according to the character of the muddy tributaries which poured in their contents from both sides. As we drew away from the influence of the cold winds coming from Bathurst's Inlet, a proportionate and most agreeable change took place in the weather; and at 2 P.M. of this day the thermometer stood at 68° in the shade, and 84° in the sun. We glided quickly along with the strong current, passing by peaked sand-hills, which rose like artificial structures amidst low shelving prairies, covered with deer to the amount of many thousands. After crossing a small lake, where the current could just be distinguished in the centre, the stream again contracted to about three hundred yards, and precipitated itself over a bed of rocks, forming rapids and cascades, which compelled us to carry the principal baggage; a precaution, indeed, never omitted when there was the least appearance of danger. Three detached and lofty hills of gneiss, with obtuse conical tops quite bare, here formed conspicuous

objects. From the level character of the land to the eastward, they could be seen at a great distance, and might thus serve as marks for any wanderers whom chance or design should bring to this far country.

Indeed, that they had already been made use of for this purpose seemed to be indicated by numbers of piled stones, precisely similar in figure to those which I remembered to have seen along the banks of the Copper Mine River, as well as by some trenched divisions of ground, containing the moss-covered stones of circular encampments, evidently the work of the Esquimaux, on whose frontiers we had arrived. I confess that these unequivocal traces of the "shivering tenants" of the arctic zone did not a little surprise me; since on former occasions we had not found them at a distance from the coast. Was it possible, I asked myself, that we were nearer the sea than I had imagined? It was not likely that they had come from Bathurst's Inlet, though not more than one hundred and seventeen miles off, for that lay to the north-west, and they would fall on the river much nearer, namely, at the western extremity of Lake Beechey. On the other hand, if they came from the eastward, were they from Chesterfield Inlet, the western or nearest termination of which, according to Arrowsmith's map, was not less than one hundred and fifty-eight miles?

By a minute inspection of the marks, I was at length satisfied that they all pointed N. E. and S. W. with as much precision as if they had been so placed by compass, and hence concluded that it was in the former bearing that we might expect to find the Esquimaux; though, whether far or near, we had as yet no means of determining.

The river, from an imposing width, now gradually contracted to about fifty yards, and this narrow space had projecting rocks which compressed the passage still more. In the language of *voyageurs*, this form is denominated a spout; and the only danger attending the going through it is the risk of being thrown into the eddy at an unfavourable moment; in which case, some serious accident is sure to occur. We ran this one, and were lifted considerably higher than the side water, as we shot down with fearful velocity. Familiar as I was with such scenes, I could not but feel thankful that we escaped safe, and determined for the future to lower down all others. The stream after these agitations settled into a calm though not very gentle current, which swept us opposite a magnificent river, as broad as the Thames at Westminster, joining the Thlew-ee-choh from the eastward. Some Esquimaux marks on the banks seemed to point this out as their line of route; and I was far from being convinced that

it was not the Thē-lew, however much that opinion might be at variance with the accounts we had received from the Indians.* Whatever it was, it received the name of Baillie's River, after my worthy friend, George Baillie, Esquire, Agent General for Crown Colonies. Not a great way from this we encamped; and some explanations having been made to the crew, as to the caution which the smallness of our number rendered necessary, a regular watch was established, in which Mr. King undertook to look out from 10 P.M. to 4 A.M., the usual hour of starting.

The following morning, instead of gaining to the westward, which various gleams of open water in that direction had again led us to hope, the river turned short round to the eastward; but after three or four miles, again resumed its old course. Sand-banks and islands were constantly met with; and from our ignorance of the channels between them, we were repeatedly aground. In these cases, the people had to wade until the boat again floated freely, with the chance of being thrown into the same situation ten minutes afterwards. Since the junction of Baillie's River, the stream had sensibly widened; and had it not been for the strong current, might have been

* From a minute inquiry made afterwards, I have every reason to believe that the Thē-lew falls into Chesterfield Inlet.

taken for a lake. It was bordered on either side by a low sandy district, studded with a few inconsiderable rocky hills, mostly detached, and a mile or two from each other. Even these soon disappeared, giving place to an alluvial deposit, so flat as scarcely to rise beyond the general horizontal line, and to raise our hopes of being near the sea; a notion rendered more probable by the great resemblance of the country to the western mouth of the M^{c}Kenzie. Once, indeed, some of the party imagined that they saw tents; but these, as we advanced, proved to be nothing but a solitary and luxuriant border of fine willows, the secure retreat of hundreds of geese, which having lately cast their large quill feathers, were unable to fly; though, aided by instinct and good legs for running, they frequently eluded our most active hunters. If in the water—which, however, they took all pains to avoid—they had recourse to diving; and on rising to breathe, merely exposed their heads and a small part of the back, so that often they were not seen, and still oftener missed when fired at. On land, they either had a fair run for it, or plunged into any cover that happened to be near; through which, however thick, they waddled sufficiently quick to double on their pursuers, and lead them into many ludicrous situations which called forth the merriment of the rest.

The low land was now diversified by occasional mounds; and presented an opening to the left caused by a river which was called after Captain Superintendent Sir Samuel Warren, of Woolwich Dock Yard. The banks here were higher, sometimes rising into cliffs, but of the same dry and sandy character, barren and cheerless. Again, trending more to the eastward, we passed Jervoise River, another large tributary from the right; and then came to a low sandy opening, which seemed to be completely shut in, until at the northern limit a rapid channel led us among some rocks that appeared to extend from an adjacent height towards a range of hills to the north-west. The sun being too low to allow of our running the rapids before us, we encamped. There were some musk oxen here; but neither they nor even the deer or geese were startled, unless they saw some one actually going towards them. The observations to-day gave the latitude 65° 9′ 12″ N., longitude 103° 33′ 8″ W., and the variation 30° 6′ E.; thus showing that we had made nearly all easting. The threatening appearance of the curling waves, and the roar and gloom of a defile along which our course now lay, rendered it necessary to examine what there might be to contend with among the frowning rocks, which, overlapping as they receded, seemed to the eye as if they

blocked up the passage. Some time was unavoidably spent in doing this; and the report was an expression of the same sort of doubt as on a former occasion. This, however, I looked for as of course; for it could not be expected that the steersmen, however excellent in their capacity, should be equally anxious to proceed as myself: their predictions of the difficulties we should encounter on our return were, on the contrary, frequent, though I parried them by referring to my experience in these latitudes, and to the entire alteration produced by the different periods of the season in the character of the rivers; with which reasonings they were generally satisfied. It may perhaps appear to some persons that to persuade those whom I might have commanded was a gratuitous and unnecessary trouble; but it should be borne in mind that, in services not purely military, the party is not, and cannot be, brought under strict habits of discipline. The success of such an expedition depends materially on the temper and disposition of the leading men, who must sometimes be reasoned with, and at others kept in check, as circumstances may direct. It is necessary that they should feel a confidence in and attachment to their leader, not paying a mere sulky obedience to his orders; and what they do will thus be done heartily and with good will, not as the cold fulfilment of a contract.

Early in the following morning we pushed out into the beginning of the rapids, when the boat was twirled about in whirlpools against the oars; and but for the amazing strength of M^c^Kay, who steered, it must inevitably have been crushed against the faces of the protruding rocks. As we entered the defile, the rocks on the right presented a high and perpendicular front, so slaty and regular that it needed no force of imagination to suppose them severed at one great blow from the opposite range; which, craggy, broken, and overhanging, towered in stratified and many-coloured masses far above the chafing torrent. There was a deep and settled gloom in the abyss — the effect of which was heightened by the hollow roar of the rapid, still in deep shade, and by the screaming of three large hawks, which frightened from their aërie were hovering high above the middle of the pass, and gazing fixedly upon the first intruders on their solitude; so that I felt relieved as it were from a load when we once more burst forth into the bright sunshine of day. The boat was then allowed to drive with the current, the velocity of which was not less than six miles an hour, among whirlpools and eddies, which strangely buffeted her about. The men, glad to rest from their oars, were either carelessly looking at the objects which they passed, or whiffing

the ever welcome pipe, when something was seen swimming a little ahead, which was taken for a young fawn. As we nearly touched it in passing, the bowman, almost without looking, stretched out his hand to grasp it; but drew it in again as quick as lightning, and springing up for the boat-hook, called out, "D—n it, it has bit me! it's a fox." I would not allow it to be fired at; and Reynard gained the bank, and skipped about as if enjoying the trick he had played.

Still widening, the river rolled on without obstruction, being here large enough to remind me of the M'Kenzie. Heavy and long borders of thick ice, with a great deal of snow, were on the sides of the sloping banks, full ten feet above the present level. As we advanced still most provokingly to the eastward, a large river, nearly as broad as that which we were descending, came through a low country to the right, and after many windings effected a junction round a little sandy bluff. It was named after Rear-Admiral M'Kinley, who has uniformly evinced a great interest in the recent voyages of discovery. The land then became more uneven, and soon changed into hills, partly composed of bare rocks, with loose masses on them. On one, indeed, something higher than the rest, we thought for a long time there was a man; but afterwards the general opinion determined

it to be a heap of stones, possibly placed there by the Esquimaux. And this was the more probable, as on arriving opposite to another wide tributary, called, after his Majesty's Consul at New York, Buchanan's River, a great number of marks were seen distributed at particular points, and on commanding eminences along the banks, apparently for the purpose of either frightening the deer, which were plentiful as usual, into a particular course, or as places of ambush when in quest of them. The latter I think the more likely; because at certain distances along the line of marks there were semicircular skreens built of stones, having the high part, of from two to three feet, towards the open country, and the sloped or exposed side facing the river, under the banks of which the hunters would be effectually hid in passing to their lurking stations; while even if the deer were not only in front of the marks, but also between them and the water's edge, they might still be useful as a cover, and a communication might be kept up by crawling from one to another.

The breadth of the river now varied from a quarter to a mile and half; and, what exceedingly delighted me, it made a bend to the north. The country became decidedly hilly, with an odd mixture of ravines, conical sand-hills with black mossy tops, and isolated rocks, which rose like

sombre fortresses over the green and yellow soil to the westward. It looked as if constant floods had washed away the lighter earth, and left those solid masses as monuments of their ravages. We made for a distant blue peak, and passed a cluster of islands; one of which was remarkable for being overgrown with willows, while its neighbours were as sterile as the desert. Keeping close to the western shore, we rounded a jutting point, and opened upon a deep bay which received the waters of a broad river. This river has been named after my much respected friend Captain Superintendent Sir Charles Bullen, of Pembroke Dock Yard, under whose command I had once the happiness to serve. It is difficult to conjecture where it may take its rise; but from the powerful effect upon the current at two miles below its mouth, there can be no doubt that an immense body of water flows through its channel. A little beyond, a wide westerly bay almost tempted us to search for an outlet, the current having now got so slack as to be imperceptible; and numerous islands and openings at different bearings occasioned some embarrassment as to the course, until, after pulling inshore a little, the loom of a large sheet of ice arrested our attempt in that quarter; and having again regained the current, we yielded ourselves to its guidance, and were again led to the eastward.

The weather had been variable, and the thermometer as high as 68°, in the afternoon; but the sky suddenly became overcast, and heavy black clouds rolled from the N. W., which, bursting with violent squalls, poured down rattling showers of sleet. The storm, however, passed away, and the evening was fine enough to draw out some swarms of mosquitoes, that failed not to "take the goods the gods provided," when we encamped, as we were obliged to do, on the edge of a swamp. From the more hilly character and general trending of the shore, I entertained a hope that we should soon be led to the north; and most devoutly did I wish to arrive at the gneiss formation, being certain that to reach the sea in the desired direction, the river must cut its way through rocks of some kind, as I had previously observed in the Coppermine and M^c^Kenzie. In my desire to gain some further knowledge of the course, I ascended a distant hill, from the summit of which, with the help of my glass, I could discern several extensive sheets of water in almost opposite bearings, one of them being due south; but owing to the intervention of rocks, and uneven ground for about two miles in the line of my view, it was impossible to determine whether they were separate or formed one continuous water. The doubt, however, was cleared up at an early hour on the

succeeding morning (July 19th); for the current, to which we yielded ourselves, in a short time lost itself in a large lake, full of deep bays; one, indeed, with a clear and uninterrupted horizon, but glimmering with firm ice.

Having taken a more northerly course than before, and passed two openings of about fifteen and twenty miles in extent, we landed on an island for the purpose of making a third cache of pemmican. From this point I got cross bearings, and a view of another opening almost entirely covered with unbroken ice: a piece of an old kieyak *, blanched with age, and other remnants of Esquimaux workmanship, showed that the place was frequented by them at some part of the year. The opening itself was distinguished by the name of Lake Pelly, after the liberal and spirited Governor of the Hudson's Bay Company.

Leaving the island, a slight current piloted us to a rapid, near which the latitude was obtained, and informed us that indefatigable as our exertions had been we had gained but little northing, and had abundance of hard work in prospect before we should be permitted to taste salt water. As for the men, the majority inclined to a tale told them by an Indian, whom I had not seen, — that before arriving at the sea, they

* Esquimaux canoe.

would find an immense lake, with such deep bays that no Indian had ever been round them; these he said, lay to the easward, but they must be careful to keep on its western side, and by so doing would arrive at a steep and heavy fall between high rocks; this the boat would not be able to pass, but from thence they might easily walk to the "bad water;" near which, he assured them, they would also certainly find the Esquimaux. It was true that we had considerably strayed from the direction thus indicated, and had come more than double the distance at which the Indian placed the sea; but still, here was a large lake with bays answering to the description, or it might be that we should come to another still larger; after which, it was their opinion, the remainder would be verified.

The strong current from the rapid gave us some expectation that the tediousness and uncertainty of winding and groping our way in the lake was at an end; but, to our chagrin and annoyance, we soon again found ourselves in a wide indefinable space, studded with islands of sand-hills, with, occasionally, a clear horizon towards the S. and N. W. The difficulty of finding the river increased as we advanced amid this labyrinth, between the openings of which distant land could sometimes be faintly discovered. The unwelcome glare of ice was also seen. From

time to time we found a current; still we were baffled, and had often to turn on our track, only perhaps to make another deviation. At length we observed a number of grayling playing in a narrow, and rising at the flies which fell accidentally into the water; and aware that these fish usually frequent the outlets and channels of connecting water, we profited by the hint, and so far had reason to be satisfied with our judgment. But towards evening our hopes were again blighted by the startling sight of extensive and unbroken fields of ice, stretching to the extremest point of vision. Seeing, therefore, no chance of further progress at present, I encamped on a spot which, judging from the circles of stones found regularly placed, had doubtless at some time been used by the Esquimaux for the same purpose.

We were on an island; and the ridges and cones of sand were not only of great height, but singularly crowned with immense boulders, grey with lichen, which assuredly would have been considered as having been placed by design, had not the impossibility of moving such enormous masses proved incontestibly that it was Nature's work. It was with indescribable sorrow that I beheld from one of these boulders a firm field of old ice, which had not yet been disturbed from its winter station. The nearest land was a bold

rocky bluff about ten miles to the northward, but receding thence to an indistinct outline; the southward view offered nothing more encouraging, for the shore in that direction was low and distant; while to the eastward, which was manifestly our course, a black line, supposed to be water, just bordered the horizon. The whole of this expanse was sealed with ice; and with the exception of a lane of open water from our encampment to a sand-hill in the south-west, and some small holes too remote from each other to serve any purpose, there was not a place that could with any certainty be fixed on as affording a passage. Nevertheless the attempt was made the next morning a little past 3 A. M.; and though without the slightest idea of getting beyond the sand-hill, I directed the steersman to pull for it: in doing which we soon lost all traces of the current. The lane grew narrower as we proceeded, until there was barely room for the boat to pass with the poles. The ice here, far from being decayed, was two feet thick, green, and compact, and gave ominous token of what was in reserve for us farther north.

Having arrived at our Ultima Thule, we ascended the highest hill near; but only to see one wide and dazzling field of ice extending far away in every direction, and presenting a uniform bed of sharp and ragged points, that would have ground the keel to powder had we

tried to launch across it. As for carrying, the wood was much too sodden and heavy to allow the thought to be entertained. The steersmen, whose long acquaintance with inland ice had made them skilful in discovering the best way of overcoming such difficulties, were despatched to different stations, that by crossing the view they might have the better chance of acquiring the necessary information; they returned, however, with nothing but regrets at their want of success, and did not hesitate to express an opinion that a passage could not be reckoned upon until the natural disruption of the main body. Nor was this the result of any lukewarmness; for, on the contrary, they were zealous and hearty in the cause in which they had embarked, and the expression of the opinion was evidently painful to them. Of this a proof was immediately given by their cheerfulness in preparing for a start when I was heard to say that we would try what old *voyageurs* could do. I had in fact discovered by means of the telescope a slip of what I took to be water away to the N. E., in which direction, from the invariable pointing of all the Esquimaux marks we had yet seen, I felt confident that not only the river but the sea would be found. Patches also were visible in the ice between the water and the opposite land; and it was clear

that if we could only get along the low southern shore, which, though apparently unpromising, yet from its shallowness and greater radiation of heat favoured the chance of a narrow lane, we might by making a few portages be fortunate enough to succeed in reaching the open water; and at all events, whether we reached it or not, the people would be occupied, and prevented from brooding over their difficulties, and alarming themselves with the anticipation of imaginary evils.

For several hours we continued to creep slowly to the south, sometimes wedged in the ice, at others cutting through it with axes, and breaking huge masses away, — now bringing the weight of the boat and cargo to act, then lifting her with fenders on each side cautiously through the openings; and thus was the way groped nearly all day, till, as the sun got low, a shallow part defied every attempt to pass it. In vain did the people wade and carry the pieces to lighten the boat; still she would not float over the large stones that paved the bottom. The ice, therefore, was the only chance; and after making a portage for some distance over an extremely rotten part, she was absolutely lifted over the remaining obstructions, and again loaded; after which our progress was more satisfactory, and

by using the same means, though at greater intervals, we at length (at 9 P. M.) reached the open water with a strong current. But though the picturesque sand-hills seemed close to us, and the crew, half benumbed as they were from being so long in the water, exerted themselves to the utmost, and had moreover the aid of the current, still, with all this, we did not reach land until past 10 P. M. Our observations placed us in latitude 65° 48′ 4″ N., longitude 99° 40′ 46″ W., with variation 29° 38′ E.; and in sixteen hours we had only come fourteen miles.

July 21st. — I examined the lake from the summit of the hill above our encampment, and found that the current which had befriended us over night became powerless about two hundred yards farther on; at which point the main body of the ice commenced again, and stretched to an undefinable distance, interrupted occasionally by jutting points, over which in some places it was again visible. A small southerly channel, however, led to some islands, and for these we steered, but soon became hampered with surrounding ice. The same mode of proceeding was therefore adopted as on the preceding day; and in four hours we were lucky enough to have advanced eight miles, though not in the direct line of our course. Some open water was then seen

to the north; and though doubtful if the river would be in that quarter or more to the eastward, I stood over for it, as the inclination of a line of sand-hills rather favoured the former opinion. With a little difficulty we succeeded in reaching a lane, which ultimately led us to the main land, against whose rocky sides the ice again abutted. A portage was immediately made, and the boat lifted over into the water. In ten minutes we were again stopped by ice, so thick that all our endeavours to cut a passage with the axes, and break it as had been hitherto done, were utterly in vain. Another place, which seemed to offer fewer obstacles, was tried with the same result; we therefore, landed and made a second portage across the rocks, which brought us to a sheet of water terminating in a rapid; and this, though seldom a pleasing object to those who have to go down it, was now joyfully hailed by us as the end of a lake which had occasioned us so much trouble and delay. In summer, however, or, more properly speaking, autumn, this lake must be a splendid sheet of water; wherefore, regarding it apart from the vexations which it had caused me, I bestowed upon it the name of Lake Garry, after Nicholas Garry, Esq., of the Hudson's Bay Company, to whose disinterested zeal in the cause of polar

discovery, and undeviating kindness to all connected with it, such honourable testimony has been borne by Sir Edward Parry and Sir John Franklin that to dwell on them here is superfluous.

CHAP. XI.

Gigantic Boulders. — Danger from the Rapids. — Course of the River. — Lake Macdougall. — Hazardous Passage. — Sinclair's Falls. — Northerly Bend of the River. — Mount Meadowbank. — Altitude of the Rocks. — The Trap Formation. — M^c Kay's Peak. — Lake Franklin. — Extrication from Peril. — Sluggishness of the Compass. — Esquimaux — Portrait of a Female. — Victoria Headland. — Mouth of the Thlew-ee-Choh. — Cockburn Bay. — Point Backhouse. — Irby and Mangles' Bay. — Point Beaufort. — Our Progress arrested. — Montreal Island. — A Musk Ox killed. — Birds on the Island. — Elliot Bay. — M^c Kay, etc. sent along the Coast. — Esquimaux Encampments. — Cape Hay. — Point Ogle. — Progress obstructed by the Ice. — A Piece of Drift-wood found. — Ross Island. — Discoveries by Mr. King. — Magnetic Observations. — Point Richardson. — Point Hardy. — Conjectures as to a N. W. Passage and Channel to Regent's Inlet.

Congratulating one another on our release, we went on with renewed spirits. Much ice was carried down the rapid, which, instead of going into the wide space in front, was impelled suddenly to the eastward, and thence again hurried by a strong northerly current into a branch of another lake, the bays of which were not less than from twelve to fifteen miles deep. Long ranges of conical and cliff-broken sand-

hills extended irregularly nearly round the compass, but mostly to the northward and westward, towards which direction the stream ran with immense force. There were no rocks visible nearer than Lake Garry; but gigantic boulders were strewed in every direction, and in two instances were seen on the summits of conical and isolated sand-hills much resembling those previously mentioned. One of these was very conspicuous, as well from its height as from its situation in the centre of the river, thus forming an excellent mark for the rapid from any direction. The thermometer had been as high as 102° in the sun, and was 56° in the shade, with a S. E. wind, so as to create considerable refraction during the greater part of the day. The evening, however, was cool; and at a little past 8 P.M. we encamped.

The following day we got away at the usual hour, with the advantage of a swift current, which now swept to the northward, and in about an hour brought us to a strong rapid, the descent of which looked exceedingly like going down hill. After the usual examination, the steersmen were desirous of lightening the boat before running it, but the water was too shoal for landing, and we were obliged to pole up a small rapid to an island; whence it was at length decided, as no eligible landing-place could be found above or below it, to risk the descent with the whole cargo. It was a case of necessity; so off we

pushed, and in a few minutes were plunged into the midst of curling waves and large rocks; but the coolness of the crew, and the great dexterity of the bow and steersmen, avoided each danger as it arose. At length, however, one towering wave threw us on a rock, and something crashed; luckily we did not hang, for nothing could have resisted the force of the torrent, and the slightest check at such a time would have been inevitable destruction to the whole party. After being whirled to and fro by the velocity of counter currents, we escaped from this without other damage than a broken keel plate — an accident which left that part from thenceforth undefended — but rapid still followed rapid in disagreeably quick succession, and I was not a little rejoiced when we were again fairly in smooth water; for the lakes we had passed, with their unknown but assuredly distant boundaries, and the numerous deep bays and other impediments to a land journey, such as I had acute reasons for remembering, made the safety of the boat a paramount consideration. Not that all ordinary accidents which could befall men in our situation had not been already contemplated, and as far as my ability extended provided for; but these hourly demands on the nerves brought possible contingencies more home, and made them sink deeper into the mind. In

short, I could not divest myself of those cares and anxieties which every conscientious officer must feel for those, be they few or many, who look up to him for safety and direction.

Much to our satisfaction the river kept to the northward, and gave us the hope of making a little latitude, now become extremely desirable; when suddenly, notwithstanding the long view ahead, towards which the current seemed to be setting, it turned off at a right angle, and opened into a spacious lake, the extremity of which could not be discerned. With singular eccentricity, however, it soon again trended northward through a wide space with many deep bays, some of which were totally covered with ice. The islands were also numerous; and having passed between two where there was a rapid, we came to so great an extent of water and ice, land being not visible to the north, that the steersman exclaimed, "All the lakes we had yet seen are nothing to this one!" In its large expanse the current was soon lost, and proportionate embarrassment was occasioned us in deciding on the most probable direction for striking on the river. Several likely openings near sand-hills were explored ineffectually between north and east; for I was unwilling to think it would be found elsewhere. We rested on the oars, but the boat remained mo-

tionless, and gave no clue to the current; nor was it until I imagined that I caught the faint sound of a fall, that we reluctantly pulled along a border of firm ice which took us away due south, a direction the very opposite of that to which my wishes tended, and looking directly towards Chesterfield Inlet, — the proximity of which, I will not deny, began to give me serious uneasiness. Still keeping south, we threaded a zigzag passage through a barrier of ice, and were then led by the increasing noise to the end of the lake, which received the name of "Lake Macdougall," after my friend the Lieutenant-Colonel of the gallant 79th Highlanders.

Bending short round to the left, and in a comparatively contracted channel, the whole force of the water glided smoothly but irresistibly towards two stupendous gneiss rocks, from five to eight hundred feet high, rising like islands on either side. Our first care was to secure the boat in a small curve to the left, near which the river disappeared in its descent, sending up showers of spray. We found it was not one fall, as the hollow roar had led us to believe, but a succession of falls and cascades, and whatever else is horrible in such "confusion worse confounded." It expanded to about the breadth of four hundred yards, having near the centre an insulated rock about three hundred feet high, having

the same barren and naked appearance as those on each side. From the projection of the main western shore, which concealed the opening, issued another serpentine rapid and fall; while to the right there was a strife of surge and rock, the roar of which was heard far and wide. The space occupying the centre from the first descent to the island was full of sunken rocks of unequal heights, over which the rapid foamed, and boiled, and rushed with impetuous and deadly fury. At that part it was raised into an arch; while the sides were yawning and cavernous, swallowing huge masses of ice, and then again tossing the splintered fragments high into the air. A more terrific sight could not well be conceived, and the impression which it produced was apparent on the countenances of the men. The portage was over scattered debris of the rocks (of which two more with perpendicular and rounded sides formed a kind of wall to the left), and afforded a rugged and difficult way to a single rock at the foot of the rapid, about a mile distant. The boat was emptied of her cargo, but was still too heavy to be carried more than a few yards; and, whatever the consequence, there was thus no alternative but to try the falls.

Every precaution that experience could devise was adopted; double lines to the bow and stern were held on shore by the most careful of the

men, and M^c^Kay and Sinclair took their stations at each end of the boat with poles, to keep her from dashing against the rocks. It was no common attempt, and excited in me the most lively concern for their safety. Repeatedly did the strength of the current hurl the boat within an inch of destruction, and as often did these able and intrepid men ward off the threatened danger. Still, amongst the many descents, she did not escape without some severe shocks, in one of which the remaining keel plate was entirely stripped away; but cool, collected, prompt to understand and obey the mutual signs which each made to the other with the hand — for their voices were inaudible — the gallant fellows finally succeeded in guiding her down in safety to the last fall. There she was taken out of the water, and, with the assistance of Mr. King and myself, was, though with difficulty, carried below it. On our return to the baggage, I gave the men a good glass of grog, with praises which they had well earned; and all being weary with exertion, we encamped for the night.

At $3^h\ 30^m$ A.M. of the 23d, the people began carrying the pemmican and boxes across, a task which the loose and slippery stones made by no means easy; and aware that it would take them till noon to complete the work, I gladly availed myself of the opportunity to obtain observations;

the result of which was, latitude 65° 54′ 18″ N., longitude 98° 10′ 7″ W., variation 29° 16′ E.; thus showing a diminution of the latter as we made northing: and indeed, the powerful action of some influence was apparent in the increasing sluggishness of the compass, which of late required to be frequently tapped at the sides to make it move. But the most interesting observations were those for dip and intensity, particularly with Hansteen's needle. The former was taken with a vertical compass by Dollond, which wasvery dull and heavy, making few vibrations; and when within 10° or 15° from its last vibration, swagging, and ultimately stopping suddenly. For the latter a horizontal one was used, which moved remarkably slow, and seemed to hang at the extremity of every oscillation; but still vibrated longer and more steadily than might have been expected after the working of the other.

I had now also leisure to ascend the highest of the rocks, which had a smooth table summit of quartz, red felspar, and horneblende, the red predominating at that part, though partially covered with a grey and minute yellow lichen. The Esquimaux had here erected a small obelisk of slabs, placed perpendicularly on each other; and within a few paces of it were two more marks, one consisting of three longitudinal fragments

resting against and supporting each other, so as to form a triangular pyramid; the other also of three pieces, but so placed as to form three sides of a parallelogram. The use of the last one I could not divine, since it was too large for a fire-place, of which, indeed, there was no trace, and not secure enough for a cache. Among the loose debris, a cache might have been made safe even from the plundering wolvereens; but in a situation so exposed there could be no security. I could only conjecture that it might, perhaps, serve as a place of watch and concealment on hunting or other excursions which might bring the adventurer within reach of an enemy's arrow. These piles, like those farther south, pointed north-east, and not due south to Chesterfield Inlet; which at this point was not more than ninety-four miles from us, and towards which, until the turn at the Rock Rapid (our present encampment), the Thlew-ee-choh seemed to be directly tending.

The prospect before us, viewed with a telescope from the commanding eminence of the rock, extended to an immense distance; but in no manner aided to clear up the doubt of what would be the ultimate course of the river. For at the utmost limit to the south-east, mingling with the white haze of the atmosphere, water was distinctly seen; which, by following the

windings of the valleys, could be traced to about four miles of where we stood, this short intermediate space being occupied by a line of shallow rapids. To the north-east, indeed, interrupted glimpses were caught of a serpentine stream leading to some sand-hills; but, made cautious by disappointment, we put little faith in such appearances.

Whilst making these observations, I had not once turned round; but now doing so with the intention of proceeding on the voyage, I perceived, to my amazement, that there was no spray rising from the rapid, and that its deafening roar had subsided into a grinding and hollow noise, which betokened the destruction of whatever it was which caused it. A phenomenon so utterly at variance with what had existed an hour before made me hasten down, more, however, to look after the boat, than for the satisfaction of any curiosity, as upon consideration I could not but infer that it was the ice driven by the wind and current together from Lake Macdougall, that was choking up the rapid. And so it proved; it was the disruption of the main body of the ice, or, as it is called, the last break up of the season, when fine weather may be expected. With this new obstacle there was no immediate contending; for in such a torrent the boat would have been crushed to atoms. At length, however,

the stream, which rushed with amazing velocity, by 5 P.M. so far cleared itself as to allow of our loading the boat; not, however, without risk from the floating pieces which yet remained beating about in the eddy, and which it required the entire attention of two men to keep off. Scarcely had we pushed from the shore, when we were in the midst of rapids. Two were run; but the third was too dangerous to allow the attempt; consequently again we had to carry all the cargo across a portage of half a mile, while the boat so lightened was brought safely down the rapid. The opposite shore was then discovered to be an island, round the western extremity of which another branch of the river cut a broad channel, and joined the one we had selected by a fall of ten feet. A quarter of a mile below the junction, this extraordinary stream was checked by a shelving ledge of low rocks that turned it to the north, in the direction of the sand-hills which we had seen in the early part of the day.

An overcast and stormy night, with much rain, brought in a morning which forbade the attempt to start, as it was impracticable, with such a gale, to keep the lead in the rapid before us; so that there was no choice but to wait until it should calm. In the meantime, M^{c}Kay was sent to examine the river farther down, and returned about noon with an account of several rapids and a

large fall not far from us, and of having seen some marks on his way. In the afternoon, the journey was resumed; and having followed the turn to the north, and got down the rapids, we made a portage at Sinclair's Falls; so named after one of the steersmen, who has been already frequently mentioned, and who was so complete a boatman as to be equal to the duty of the bow also, which station indeed he had all along filled.

The river was now near a mile broad, full of small rocky islands, with falls between each, not unlike the Pelican Fall in the Slave River. The boat was lowered down; and following the bend, which was bordered by the sand-hills, we came to an opening disclosing some distant mountains, towards which it was thought our course would lie. Conjecture, however, was useless: even here, we were twice thrown out by the overlapping of low points and by counter currents; but at last we found a wide channel running to the S. E. At its entrance the fourth cache of pemmican was made; and as it was too late to see the stones in the water, we encamped.

July 25th.—The weather was raw and cold, though the wind was southerly, and the thermometer 48°. The banks on either side were low, but curiously paved with round stones, probably forced in by ledges of grounded ice.

The next reach turned to the northward, and became so wide that it might well have been called a lake. Such expansions always occasioned us some perplexity, from the uncertainty and difficulty there was in tracing the run of the current. In this instance, however, it was less inconstant than usual, and for a few miles continued nearly in the same course; when, after gradually contracting, it was broken by a mile of heavy and dangerous rapids. The boat was lightened, and every care taken to avoid accidents; but so overwhelming was the rush and whirl of the water, that she, and consequently those in her, were twice in the most imminent danger of perishing by being plunged into one of the gulfs formed in the rocks and hollows of the rapid. It was in one of those singular and dangerous spots, which partake of the triple character of a fall, rapid, and eddy in the short space of a few yards, that the crew owed their safety solely to an unintentional disobedience of the steersman's directions. The power of the water so far exceeded whatever had been witnessed in any of the other rivers of the country, that the same precautions successfully used elsewhere were weak and unavailing here. The steersman was endeavouring to clear a fall and some sunken rocks on the left, but the man to whom he spoke misunderstood him, and did exactly the reverse;

and now, seeing the danger, the steersman swept round the boat's stern: instantly it was caught by an eddy to the right, which snapping an oar, twirled her irresistibly broad side on; so that for a moment it seemed uncertain whether the boat and all in her were to be hurled into the hollow of the fall, or dashed stern foremost on the sunken rocks. Something perhaps wiser than chance ordained it otherwise; for how it happened no account can be given, but so it was that her head swung inshore towards the beach, and thereby gave Sinclair and others an opportunity of springing into the water, and thus, by their united strength, rescuing her from her perilous situation. Now had the man to whom the first order was given understood and acted upon it, no human power could have saved the crew from being buried in the frightful abyss. Nor yet could any blame be justly attached to the steersman: he had never been so situated before; and even in this imminent peril his coolness and self-possession never forsook him. At the awful moment of suspense, when one of the crew with less nerve than his companions began to cry aloud to Heaven for aid, M'Kay, in a still louder voice, exclaimed, "Is this a time for praying? Pull your starboard oar." "Heaven helps those who help themselves" seems to have been the creed of the stout-hearted highlander.

On the eastern side we noticed some marks, as well as the remains of an Esquimaux encampment; but nothing which denoted when they had been there. Having made another cache of pemmican, at the foot of Escape Rapid, in order to lighten the boat as much as possible, we pursued our course; but had not got more than two miles farther, when a thick fog and pelting rain obscured the view, and obliged us to land for shelter. As soon as it cleared, which was not before the evening, we renewed the attempt; and were urged by a strong current considerably to the eastward, the river now taking that direction through a range of cliffy sand-hills, in which, on some occasions of more than common obstruction, its eddies had scooped out extensive basins. The current, always swift, now rushed on still faster, and soon became a line of heavy rapids, which more than once made me tremble for our poor boat; for in many parts, not being able to land, we were compelled to pull hard to keep her under command, and thus flew past rocks and other dangers with a velocity that seemed to forebode some desperate termination: happily, however, we escaped; though only to begin another series. Along the banks of these last lay several dead deer, which had doubtless been drowned in attempting to swim to the opposite side. At 8 P.M. we arrived near a detached mountainous rock dipping to the western

shore of the river, in which quarter the descent, now manifest, as well as the hollow roar, plainly indicated something which at that late hour it was prudent to avoid; and, to say the truth, however habit may in most things produce a sort of callous indifference to danger, I had abundant proof this day that the rule does not always hold good, for the very *élite* of my men were beginning to evince a cautiousness which was quite new to them; and the order for encamping was executed with a very significant alacrity.

Within a few hundred yards of us, nine white wolves were prowling round a herd of musk oxen, one of which was shot; but, being a bull, was too strongly scented to be eaten. As there was no possibility of making a portage, should it be necessary, on the side where we had encamped, at daylight of the following morning we pulled up stream to cross over, and see if it was more favourable on the other side. The descent broke over a fall five feet deep, opposite to a gloomy chasm in the rock; but as it did not reach quite to the eastern side, the boat was enabled to pass it, and then ran the Wolf Rapid. Some of the animals whose name it bore seemed to be keeping a brisk look-out for what might happen.

Several other rapids (for there was no end of them) worked their way between high rocks, which now, for the first time since the river had

turned so much to the eastward, lay on that side; a circumstance that I thought augured well for a northerly bend at no great distance. But what most gratified me was the disappearance of the sand-hills, which I beheld as so many enemies to our cause, that were gradually leading us away to the wrong side of our object. My joy, therefore, may be imagined at seeing, as we advanced, that my hopes were, after all, likely to be realized; for the late suspicious trending to the eastward, almost in a parallel of latitude, had again created doubts in my mind, and set me speculating whether the river might not yet terminate in Wager Bay.

Another cache was made, with the addition of a little ammunition and tobacco. Some more rapids led farther to the north; and the stream, as may be supposed, after the addition of so many tributaries, maintained an imposing breadth, being, in some parts, upwards of a mile. Both sides were hemmed in by mountains, covered as usual with boulders and large fragments of loose splintery rock, the dark and purplish hue of which relieved the green shelving slopes dotted with herds of musk oxen.

A glimpse of the sun at noon gave the latitude 66° 6′ 24″ N.; nearly abreast of a picturesque and commanding mountain, with steep sloping sides to the south-west, where cattle were feeding,

but to the northward broken into fearful precipices and overhanging cliffs, inaccessible to the foot of man. It was by far the most conspicuous eminence we had seen; and, from some fancied likeness, the people said, "Here's Hoy Head,—give way, boys, we are not far from the sea." The remark took me in imagination to Auld Reekie; and I called the hill Mount Meadowbank, in honour of the learned Lord of that name.

After a course of six miles to the south-east, the river again veered northerly, rushing with fearful impetuosity among rocks and large stones, which raised such whirlpools in the rapids as would have put the strength of a canoe in jeopardy. The boat's breadth of beam and steady trim kept her up in such trials; but, though we escaped the rapid, we had a narrow chance of being dashed on the beach by the eddy. The low projecting point of rock, against which we had been thus almost thrown and then whirled away from by the receding current, was remarkable for a row of piled stones or slabs, placed a few feet apart, which, as we shot the rapid, were at first mistaken for figures gazing at us. On the neighbouring hills and mountains were many more of a similar construction, which, we could easily understand, might serve for marks to guide the natives through the country;

but for what purpose this "picquet" mounted guard at the foot of the rapid, was not quite so clear to our comprehensions.

To the westward the rocks attained considerable altitude, and, comparatively speaking, had become even mountainous. They were desolate, rugged, and barren; but to the eastward there was more vegetation, on a shelving and regular country. More rapids were passed; and, at 8 P.M., we encamped under the lee of a high rock, partially clad with shrubs and moss, in which the musk oxen and deer had tramped deep tracks. It was opposite to a solitary bank of sand, that formed the western entrance to a small river apparently a favourite resort of geese, which, having frequented it in numberless flocks during the moulting season, had left thousands of the finest quills strewed on the sand. Carts might have been laden with them.

The morning of the 27th was cloudy and cold; the thermometer being 40° with a south-west wind. We were on the water by 4 A.M., and were gratified to find that the river maintained the same direction, with a breadth varying from three quarters of a mile to a mile, and with a border of granitic mountains on each side. A rapid that was passed caused it to deviate a little to the westward; and, on the right bank of a second one, more intricate than

the first, we observed the marks and traces of three circular encampments, the inner portions of which were divided into sections, as if for the convenience of different occupants. Near this, the rocks became steeper, if possible more barren, and distinguished from those farther south by their precipitous sides and cliffs facing to the west and north-west.

In the afternoon, the stream took a wide sweep; and at a bay to the westward, half screened by huge rocks, it received another large tributary, which I named after Lieutenant-General Sir Thomas Montresor. It was here that the trap formation first exhibited itself, rising ridge over ridge, like a range of long flat steps, with bare and rounded sides, sometimes terminating precipitously. Many dipped into the water in a line with a few sandy islands, which sprung, like sugar loaves, from the bosom of the stream, and the yellow surfaces of which had an appearance of forced and unnatural gaiety, amidst the gloom of that dark and desolate scenery.

The swollen river now rolled on in sullen and deathlike silence, long undisturbed by any thing louder than an occasional bubbling caused by the unevenness of the bottom. But the shores got nearer and nearer, and, for a space, it was quite uncertain in what quarter we should go.

There was a rocky hill, so remarkably formed as to have attracted the attention of all of us for some time. The base, which was equal in height to the surrounding mountains, was one enormous mass of round grey rock, surmounted by a large cone of the same substance, which so exactly resembled in outline the crater of a volcano, and was withal so black, that it required no straining of the imagination to conceive it one. At a distance it was taken for an island; but as we advanced, we found it to be a part of the eastern shore, and were soon made aware that the contracted outlet of the river lay at its foot. On our landing, the steersman volunteered to ascend it, to get, as he termed it, "a good look at the river;" and in consequence we christened it M^cKay's Peak. From its giddy height the rapid looked as even and smooth as oil; and in that supposition, having taken the precaution to lighten the boat forward, we pushed off, and the next minute were in it. I think I shall never forget the moment of the first descent down what cannot be more fitly described than as a steep hill. There was not, it is true, a single break in the smoothness of the surface; but with such wild swiftness were we borne along, that it required our extremest efforts, the very tug of life, to keep the boat clear of the gigantic waves below: and we succeeded at last only to be

tossed about in the Charybdis of its almost irresistible whirlpools.

Having got out of this trouble, nothing loth, we breathed more freely again in the wide stream, which now carried us gently forward. Craggy rocks, as before, bordered each side, the western being the more open of the two, with undulating prairies. At the end of six miles, a sandy bluff from the left seemed to bar the river; but, on drawing closer, it proved, as expected, the beginning of another rapid; which, however, was more civil than the last, and allowed us to pass with a few good-humoured buffetings to make us free of its waters.

When we had fairly entered the mountainous country, and the river had taken a decided turn to the northward, I certainly did not contemplate any other interruption than rapids or falls; my astonishment will therefore be understood, when, from the foot of the rapids, we emerged into the expanse of a spacious lake, bounded only by the horizon, and stretching away in a direction about N.N.W. For a while the current was felt, and guided us on; but soon the old difficulty was experienced, and we had again to grope our way towards the river as we might. A cold head-wind with rain did not aid this operation; and as the evening was already far advanced, we encamped,—after which divine service was read

in the tent. I had already been to the summit of a tolerably high hill, but could not descry any land: there was, however, much ice in a N.N.W. bearing; and the space between the western shore and us, which might be from five to six miles, was quickly filling up by the drifting masses from the main body. It was, therefore, an important consideration to push on as fast as possible, and secure the passage that was still left; but whether in effecting this the right or the left side should be preferred, was a question that I had some difficulty in solving. The general direction of the last two days would have inclined me to lean to the western shore; but depending on the marks, which were now seen on every height, I chose the other; and starting at 4 A. M., July 28., with a chilly north-west wind, and the thermometer at 38°, we made for an island right ahead, and bearing N.N.E.

A short breaking sea and the ice together considerably impeded our progress; but on reaching the island, we opened upon a bay, into which I pulled, with the double purpose of finding the river if it were there, or of creeping under a weather shore if it were not; and after a course of about three miles to an island, which formed a strait with the mainland, we had the satisfaction to find that the current was running with us to the eastward. Leaving the lake, therefore, which, as

a slight token of my sincere regard, I called after my friend Captain Sir John Franklin, whose name will always be associated with this portion of America, we followed the stream, which, as usual, soon broke into a rapid: this was safely passed; but the next, close to it, demanded more caution; for, from its breadth, which was not less than three quarters of a mile, and the white spray which was rising at the vanishing line, it was clearly not to be ventured on without a preliminary examination. And fortunate it was that the precaution was taken; for there was a rapidly inclined descent of twenty feet, divided at the upper end by two islands, and at the lower end by one, thickly spread with perpendicular slabs set up as marks, three or four feet high, and many even more. The entire space of the rapid was shoal, and encumbered with stones, which threw up a continuous sheet of foam; but an inner channel along the western bank admitted of the boat's being lowered down quite light with ropes and poles as far as the lower island. Here, however, there was an awkward fall, which it was impossible to lower down,—neither was the ground practicable for a launch. The only method, therefore, which remained for extricating her from her present situation, however dangerous the attempt, was to plunge into the breakers outside the island.

Prudence, and a proper regard for the safety of my companions, made me hesitate at this trying juncture; but at length, placing a just reliance on Providence, and encouraged by the manifestation of that ardour which rendered the men superior to danger, I ordered the movement to be made, directing those who were to execute it to keep near the outer bank of the island, and if possible to land and lower down. In a few seconds they were out of sight; and anxiously, with Mr. King, I took my station on a hill that commanded the foot of the rapid, as well as the point round which they were to come. Treble the time elapsed that was requisite to bring them within sight, and still they did not appear. I scoured the river with the telescope, yet saw nothing but water and rock. In vain we strained our sight, in vain listened for a voice; nothing was heard or seen but the torrent, which raged and rolled on heedless of our anxiety. At this painful crisis, when apprehension was beginning to prevail over hope, the boat suddenly appeared, seeming to cut her way through the solid land of the lower part of the island, where, as we afterwards learned, there was a very narrow and shoal channel, entirely concealed from us, through which the men had cautiously lifted her. The trouble attending this proceeding had caused the delay which had alarmed us; nor was it until noon

that the arrangements were again completed for resuming the journey.

I may take occasion to remark here, that ever since leaving Rock Rapid, the compass needles had been getting daily more sluggish; and at this place, where there were many rocks *in situ*, or lying in fragments on the mossy soil, though I could not find that these directly affected them, they would hardly traverse at all when at rest; and mine frequently remained wherever it was placed, without evincing the slightest tendency to recover its polarity. However, the constant jerking motion of pulling did so far move them about as to enable me to get the courses with some approach to exactness, though certainly not so as to be depended upon without the assistance of the chronometers.

A fine open reach ahead at first held out the prospect of repaying us for lost time; but, at the end of three miles, the river became again pent in by almost meeting rocks of considerable altitude, the summits of which were crowned with the usual upright marks, still more numerous even than before. The disappearance of the surface line of water, and successive jets of mist thrown up against the grey rocks, gave unequivocal tokens of a fall; and, while examining the rapid that led to it, we perceived that, besides the marks on the

Capt.n Back R.N. July 28th 1834

Engraved by E.Finden.

Interview with the Esquimaux of the Thleweechoh-zeth

Published by John Murray London 1836

eastern hill, there were many active and bustling figures, either pressing in a close group or running about from place to place, in manifest confusion. These were the Esquimaux, of whom we had so long and ardently wished to get a sight. Some called out to us, and others made signs, warning us, as we thought, to avoid the fall, and cross over to their side of the water: but when our intention of doing so was apparent, the men ran towards us, brandishing their spears, uttering loud yells, and, with wild gesticulations, motioning to us not to land. For all this I was quite prepared, knowing the alarm which they must naturally feel at beholding strangers issuing from a quarter whence hitherto the scourge of merciless warfare only had visited their tribes. As the boat grounded they formed into a semicircle, about twenty-five paces distant; and with the same yelling of some unintelligible word, and the alternate elevation and depression of both extended arms, apparently continued in the highest state of excitement: until, landing alone, and without visible weapon, I walked deliberately up to them, and, imitating their own action of throwing up my hands, called out Timā, — peace. In an instant their spears were flung upon the ground; and, putting their hands on their breasts, they also called out

Timā, with much more doubtless greatly to the purpose, but to me of course utterly unintelligible. However, I interpreted it into friendship; and, on that supposition, I endeavoured to make them comprehend that we were not Indians, but Kabloonds — Europeans — come to benefit not to injure them; and as they did not, like their neighbours to the north, go through the ceremony of rubbing noses by way of salutation, I adopted the John Bull fashion of shaking each of them heartily by the hand. Then patting their breasts, according to their own manner, I conveyed to them, as well as I could, that the white men and the Esquimaux were very good friends.

All this seemed to give great satisfaction, which was certainly not diminished by a present to each of two new shining buttons. These, some fish-hooks, and other trifles of a like kind, were the only articles which I had brought for this purpose, being strongly opposed to the customary donation of knives, hatchets, and other sharp instruments, which may be so easily turned to use against the party presenting them. They expressed much astonishment at seeing me constantly refer to a small vocabulary with which Mr. Lewis, of the Company's service, had been kind enough to provide me; and were waggish enough to laugh at my patchwork discourse of mispronounced and

misapplied words, and scarcely more intelligible signs. Whilst we were thus engaged, some old men, half blind, came tottering up with their spears, accompanied by two equally old women, carrying short and rudely fashioned iron knives, which, like the sword of the redoubted Hudibras, would do to toast or strike withal; but, perceiving the uplifted hands of their friends, the men threw their spears on the ground.

Conceiving that I had now in some degree gained their confidence, though not so entirely but that each held the knife or stiletto-shaped horn grasped in his hand by way of precaution, I suppose, against treachery, I directed M^c^Kay and Sinclair to go and examine the fall, with a view to run it, if possible, and so avoid the making a portage, fearing lest the sight of our baggage might tempt the natives to steal, and so provoke a rupture. They understood at once what we were about; so, to draw off their attention, I went with them to their tents, which were three in number, one single and two joined together, constructed in the usual manner with poles and skins. On our arrival, I was struck with the sight of a sort of circumvallation of piled stones, precisely similar to those which we had passed, and arranged, as I conjectured, to serve for shields against the missiles of their enemies; as, besides the bow,

arrow, and spear, these people make a most effective use of the sling. Many dogs, of an inferior size, were basking in the sunshine, and thousands of fish lay all around split, and exposed to dry on the rocks, the roes appearing to be particularly prized. These, which were white fish and small trout, had been caught in the eddy below the fall, and kept alive in pools constructed for the purpose. The women and children, about a dozen in number, came out of the tents to see me; and the men pointed out their own helpmates and offspring with apparent fondness. Beads were soon distributed to both the women and children, and in return they gave me some trifles of their own rude manufacture.

By this time the steersman reported the impracticability of getting down the fall, owing to a dangerous rock near the centre; and was instructed, in consequence, to have the baggage carried over the portage, in such a manner that one person should always be with the depôt, while Mr. King, who had general directions never to lose sight of the boat, would superintend the whole. While the crew were thus occupied, I took upon me the part of amusing the Esquimaux, by sketching their likenesses and writing down their names. This gratified them exceedingly; but their merriment knew no bounds when I attempted, what was really no easy task, to

pronounce what I had written. There might have been about thirty-five altogether; and, as far as I could make out, they had never seen "Kabloonds" before. They had a cast of countenance superior to that of such of their nation as I had hitherto seen, indicating less of low cunning than is generally stamped on their features; though, in most other respects, sufficiently resembling them. The men were of the average stature, well knit, and athletic. They were not tattooed, neither did their vanity incommode them with the lip and nose ornaments of those farther west; but, had they been disciples of the ancient fathers, who considered "the practice of shaving as a lie against our own faces," they could not have nurtured a more luxuriant growth of beard, or cultivated more flowing mustachoes. In the former they yielded the palm only to that of Master George Killingworth, "which was not only thick, broad, and yellow-coloured, but in length five feet and two inches of assize."*

The women were much tattooed about the face and the middle and fourth fingers. The only lady whose portrait was sketched was so flattered at being selected for the distinction, that in her fear lest I should not sufficiently see

* Barrow's Chron. Hist. of Voyages, c. Hakluyt.

every grace of her good-tempered countenance, she intently watched my eye; and, according to her notion of the part I was pencilling, protruded it, or turned it so as to leave me no excuse for not delineating it in the full proportion of its beauty. Thus, seeing me look at her head, she immediately bent it down; stared portentously when I sketched her eyes; puffed out her cheeks when their turn arrived; and, finally, perceiving that I was touching in the mouth, opened it to the full extent of her jaws, and thrust out the whole length of her tongue. She had six tattooed lines drawn obliquely from the nostrils across each cheek; eighteen from her mouth across her chin and the lower part of the face; ten small ones, branching like a larch tree from the corner of each eye; and eight from the forehead to the centre of the nose between the eyebrows. But what was most remarkable in her appearance was the oblique position of the eyes; the inner portion of which was considerably depressed, whilst the other was proportionately elevated. The nostrils were a good deal expanded, and the mouth large. Her hair was jet black, and simply parted in front into two large curls, or rather festoons, which were secured in their places by a fillet of white deer skin twined round the head, whilst the remainder hung loose behind the ears, or flowed not ungracefully over her neck and

Esquimaux Woman

Esquimaux Man

shoulders. She was the most conspicuous, though they were all of the same family: they were singularly clean in their persons and garments; and, notwithstanding the linear embellishments of their faces, in whose mysterious figures a mathematician might perhaps have found something to solve or perplex, they possessed a sprightliness which gave them favour in the eyes of my crew, who declared "they were a set of bonnie-looking creatures."

There was no other peculiarity to distinguish the tribe from those pourtrayed by Parry and Franklin; except in one wild-looking man, who having on a pair of musk-ox skin breeches, with all the honours of the shaggy mane outside, reminded me strongly of the fabled satyrs of the olden time. But he was a character even among Esquimaux.

They had only five keiyaks or canoes; and the few implements they possessed were merely such as were indispensable for the procuring of food; viz. knives, spears, and arrows. The blades of the first and the heads of the last were sometimes horn, but oftener rough iron, and had probably been obtained by barter from their eastern neighbours; a conjecture to which I am inclined to attach the more weight from the fact that the models of some of their little presents resembled

the Indian daggers disposed of at the Company's posts throughout the country.

They knew nothing of any ship having been in Regent's Inlet; but after I had sketched the river near them, one of the most intelligent took the pencil, and at my request drew the coast line from its mouth, which, he said, we would reach on the following day; and after prolonging it thence a little to the northward, made an extraordinary bend to the southward. On my asking if it were indeed so far south, he took me to the highest rock, from which a range of distant mountains was visible to the east; and first extending his arm towards the sea, nearly north, he drew his body backward in a curved attitude, projecting his hand so as to intimate the trending of the land in that direction. Continuing then to make a curve with his hand from west to east, he turned slowly round, repeating very quick, "Tārreoke, tārreoke,"— the sea, the sea; and having got to a bearing about E.S.E., he suddenly stopped, accompanying the action with the observation of "Tārreoke naga," &c.; importing that in that direction there was no sea, but plenty of musk oxen. He was also acquainted with Akkoolee, which my readers will perhaps recollect as having been named to Sir E. Parry by the Esquimaux in Hecla and Fury Strait, and intimated by a repetition of the same

movement that his tribe took that course to go thither. From this action, perfectly in keeping with the outline he had drawn, it was natural to infer the jutting out of some promontory, from which the shore took a complete turn south of our position; an intimation which, far from exciting surprise, only strengthened the opinion which, in common with many others conversant with the subject, I had always entertained of a continuous coast line, probably indented with bays, between Point Turnagain and some part of Regent's Inlet. Had it been the will of Providence that poor Augustus should have been with me, this and numberless other uncertainties would have been definitively set at rest; but where there is no common language for the interchange of ideas, all conclusions must at best be uncertain; and few men have so much mastery over themselves as not to lean almost unconsciously towards a preconceived opinion. Independently of the difficulty of catching the meaning of their quickly uttered sentences, of which the sounds escaped the memory, I was further unfortunate in the dissimilarity of my vocabulary (taken from Sir E. Parry's works) to their dialect; though this, perhaps, was not greater than might be found in the same distance any where else, as for example between London and some parts of Lancashire, the respective aboriginals of which

would be not a little puzzled to find out each other's meaning.

However, as regarded the Esquimaux, there could be no mistaking the word "tārreoke," — the expressive action, — or the delineation, which latter I have preserved.

Information was now brought me that the crew were quite unequal to the task of conveying the boat over the portage, even by launching, our last resource. So, like a prudent general, I at once changed my tactics; and, taking advantage of the good-humour of our new acquaintances, requested them to give us a helping hand. The request was cheerfully complied with, and, with their assistance, we succeeded in carrying the boat below the fall; so that, in reality, I was indebted to them for getting to the sea at all. Altogether, indeed, whether owing to their natural inoffensiveness or to the fewness of their numbers, they were good-natured and friendly. They seemed, moreover, to have some notion of the rights of property; for one of them having picked up a small piece of pemmican, repeatedly asked my permission before he would eat it.

It was late when we got away, and then the breadth and deep bays of the river so puzzled us that we went astray. Having at last, with much trouble, regained the current, we were carried to some mountains on the western shore, where

we encamped, and appointed a watch for the night.

By 4 A.M., July 29th, we were afloat; but the weather was cloudy and cold, with a northerly breeze, and the thermometer at 41½°. At sunrise a fog began to spread, and soon became so dense that we found ourselves in the midst of several rapids before we were in the least aware of their presence; and subsequently the breeze freshened, and the fog increased so much, that, unable to see distinctly, we were obliged to lie by until it should clear. In the meantime the sun occasionally broke through the clouds, and enabled me to obtain observations, the results of which were, latitude 67° 7′ 31″ N., longitude 94° 39′ 45″ W.; and the variation by the sun's bearing with Kater's compass, the one commonly used, 8° 30′ W. *

The afternoon permitted us to proceed; and it was while threading our way between some sand-banks, with a strong current, that we first caught sight of a majestic headland in the extreme distance to the north, which had a coast-like appearance. This important promontory was subsequently honoured by receiving the name of Her Royal Highness the Princess Victoria. The sand-banks also now became broken into cliffs,

* See Appendix.

which, dwindling away on the eastern side to a vanishing point, subsided on the western into low flats, the level of which was just broken by half a dozen sandy knolls sparingly tipped with a few blades of dry grass. The banks on this side were cut by several channels leading to the left, but shallow, and not navigable. The country on both sides was swampy, and gradually sloped upwards to the distant mountains.

This then may be considered as the mouth of the Thlew-ee-choh, which, after a violent and tortuous course of five hundred and thirty geographical miles, running through an iron-ribbed country without a single tree on the whole line of its banks, expanding into fine large lakes with clear horizons, most embarrassing to the navigator, and broken into falls, cascades, and rapids, to the number of no less than eighty-three in the whole, pours its waters into the Polar Sea in latitude 67° 11′ 00″ N., and longitude 94° 30′ 0″ W.; that is to say, about thirty-seven miles more south than the mouth of the Copper Mine River, and nineteen miles more south than that of Back's River at the lower extremity of Bathurst's Inlet.

The rush of the current, opposed by a fresh breeze, and possibly by the tide, raised such high and breaking waves as we put out with an intention of gaining the headland, that the laden boat was unable to resist them, and shipped a

Capt.n Back R.N. del.t July 29th 1834.

On Stone by I. Hogan

VICTORIA [illegible]

great deal of water. It became therefore not only prudent but necessary to pull into a bay, which in the map is distinguished as Cockburn's Bay, being so named in compliment to the first Chairman of the Arctic Committee, Vice-Admiral Sir George Cockburn, to whose valuable exertions in organising the expedition I have already borne testimony. From the summit of an adjacent rock we could discern large quantities of ice to the westward, apparently close to the shore, which in that direction extended from twelve to fifteen miles; but the view being interrupted by the jutting out of the headland, its farther direction could not be ascertained. It must have been high water when we landed, which was at 7 P. M. of the day after the last quarter of the moon; for at about an hour past midnight, the boat, which had been left afloat in a snugly sheltered place, was found high and dry on the beach. A fresh breeze with squalls having continued through the night, it was not practicable to move until 10 A. M.; and this detention gave me an opportunity of getting sights which placed us in latitude 67° 20′ 31″ N., and longitude 94° 28′ 14″ W.: on this occasion the compass was placed upon the sandy beach, about a quarter of a mile from the nearest rocks, and agreed with two others held in the hand.

The appearance of so much ice to the west-

ward determined me to keep along the high shore where we were; and having rounded Victoria Headland, we passed a picturesque waterfall tumbling from the rocks above, and came to a high craggy point, which I named after my friend John Backhouse, Esquire, the able and excellent Under-Secretary of State for Foreign Affairs. Near this was a tolerably large island, and some others were seen more to the westward.

The weather was fine and calm, the tide ebbing; and some seals that quietly gazed at our invasion of their domain afforded amusement to the men, as they sunk and rose again without causing even a ripple that could be discerned. The shores were now becoming farther apart; and as I wished, if possible, to coast on the other side, in order that advantage might be taken of any favourable openings for the passage to Point Turnagain, which, under ordinary circumstances, we had plenty of time to reach, I landed at a mountain, and traced a line of ice from a bay on the western shore to a point directly opposite, which has been called after Rear-Admiral Gage. The haze of the atmosphere, however, prevented the distance from being clearly defined; but it was at all events cheering to behold clear water as far as the eye could penetrate; and though it was of

course not desirable to get hampered with the western ice, yet I determined to keep it in sight until we should be able to effect a crossing to the main shore beyond it. Some small islands were seen to our left, after which we opened a spacious bay five or six miles deep, and very broad (called after Captains Irby and Mangles, the Eastern travellers), which it took us between three and four hours to traverse. At this time there was every reason to anticipate a prosperous issue of our voyage westward within ten days, even though less distances should be made than during the last ten hours; but as we neared a projecting barren rock, about eight hundred feet high, forming the northern point of the bay (and which has been designated Point Beaufort, after the present distinguished hydrographer of the navy), drift ice came round it so suspiciously quick, that we found it prudent to land for the purpose of securing the boat from damage by hauling her on the shelving part, where alone it was possible. Eagerly did I clamber up the slippery sides, in the hope of beholding from the height a free and open sea; but the first glance as I topped the crest was sufficient to chill that hope, and a careful inspection with the telescope produced the unwelcome conviction that our future progress must be worked out by slow and laborious efforts. From the horizon to within two miles of where

I stood glared one solid body of drift ice, connecting both shores.

The shore to the westward was, for a like reason, unapproachable; and though a strong southerly gale might disperse the entire mass, yet there was no predicting when that would happen, whilst it was certain that a very few days of delay would inevitably be fatal to our object. It was, indeed, a mortifying consideration, that after surmounting so many toils and perils on that long and difficult river, we might be thus checked at the very place where, from past experience of the sea to the westward, I least expected such a disaster; and I could scarcely help entertaining some apprehension, that we might be at the southern extremity of a deep inlet, from which a change of wind alone could release us.

Doubly, therefore, was I grateful that the primary object of the service had been providentially anticipated. Had it been otherwise, the delay thus occasioned would have been still more mortifying.

July 31st. — A fresh breeze from the southward sprung up about midnight; yet a thin crust of ice was formed on the pools of water about the rocks. At daylight, the main body of the ice was found to be closely packed against the western shore, which extended

fifteen or twenty miles abreast of us, and thence bent into a deep bay, trending afterwards to the northward until it bore N. by W. and blended with the icy horizon. The wind had so far acted as to drive the whole mass near a quarter of a mile away from the eastern shore, leaving thereby a clear passage for a length of fourteen miles in a N.E. direction. Beyond this we could not define any land, except a blue bluff, whose base was white with refracted ice, and which bore still farther to the right. It was evident, therefore, that we were at the narrowest part of the opening, where it would be most convenient to cross; if, indeed, this were not the only place in which we could safely do so, in an undecked boat, already damaged from the shocks she had received in the falls and rapids; and, however anxious, as it may well be supposed I was, to achieve as much as possible, I could not but be sensible that to have pursued the lane to the eastward, and, according to the Esquimaux's outline, rounded the bluff to the southward, would only have been to depart more widely from our course, and to retrograde instead of advancing. Nor was this all: to have taken that course, amidst the obstacles which surrounded us, might perhaps have involved us in perilous if not inextricable difficulties; for the westerly gales, which on these shores not unfrequently commence

early in the season, might pack the drift ice to the eastward, so as to render our return in the boat utterly impossible. We had therefore nothing for it but to yield to necessity, and wait submissively until nature should remove the barrier which she had placed.

About 3 P.M. it was low water, that is, an ebb of about eight inches was observable on the shingle, and the taste of the water at that time was brackish and bad. We had reason to know this from the carelessness of my servant, who having been accustomed to fill his kettles for cooking at the river and lakes, thoughtlessly did the same thing here, and consequently spoiled the tea. To beguile the tediousness of the detention, I made a regular set of observations, which were very interesting, more especially as regarded Hansteen's needle. It was exceedingly difficult to adjust, but remained perfectly in after the set was finished. Its vibrations were even and regular, but very slow; the interval between each having increased to *three minutes and five seconds.* On the contrary, Dollond's dipping needle, No. 2., moved more freely than I remembered to have seen it. The latitude was 67° 41′ 24″ N., longitude 95° 2′ 16″ W., variation 6° 0′ W.; thermometer 72° in the tent.

August 1st.—The only perceptible difference

in the ice this morning was, that it had closed a little to the east: no opening was seen by which a passage could be made to the other side, until about 10 A. M., when I fancied that with the telescope I could make out a small lane bearing N. W. The boat was immediately launched; and with sails and oars together we effected our purpose in three hours and a half, having passed on our way an island, to which has been given the name of my companion Mr. King. We landed in a small bay, as we supposed on the main, not far from some old Esquimaux encampments, indicated by four wells or shafts for the preservation of their meat. A party was immediately despatched to examine the state of the ice in a bay to the westward, while I walked along the rocks to another point with the same view; but the result of our examinations only confirmed our worst fears, the ice being closely packed as far as the eye could reach. However, this also was drift ice, so that all hope was not shut out, as a westerly wind might and probably would clear a channel inshore; but as there was no immediate prospect of this, the breeze being from the N. E., we unloaded, and hauled the boat upon the beach to save her from being crushed by the pressure of the ice. The distance travelled this day was about twelve miles from shore to shore, and this may be considered

as the narrowest part of the mouth of the estuary. The coast here was much lower and shelving than the precipitous and bold one we had left; but we observed the same naked and round-backed rocks as at Point Beaufort; differing, however, in colour, the latter being composed almost entirely of a light flesh-tinted felspar and splintery quartz, whilst these consisted wholly of a dark grey felspar with minute granular quartz, and perhaps hornblende. Among the débris on the beach, it was not a little surprising to find fragments of limestone, though no rocks of that formation had yet been passed.

The following day brought no change for the better; for the north-east wind had packed the ice still closer to the shore. As it was therefore impossible to move, I took the opportunity of making some further observations on the dip and magnetic intensity, which latter showed a less interval; an anomaly ascribable perhaps to the difference of situation, as in this instance the stand was placed on a sandy beach, removed sixty or seventy yards from the nearest rocks, whereas on the former it stood on the very base of the rock where we were encamped. It is necessary to remark, however, that the smallest piece of iron deranged the needles, especially Hansteen's; and I have reason to believe that even my brace-buckles caused a material differ-

Capt.ⁿ Beechey R.N August 1ˢᵗ 1824.

Engraved by E. Finden.

View to Seaward from Montreal Island

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ence. Towards night some men, who had been despatched to the westward, reported that we were not on the main shore, but on a large island adjoining to it; a discovery which they had accidentally made by following two deer until they swam across the narrow channel of separation. Upon this I called the place Montreal Island, in commemoration of the attention we had received from the public-spirited and hospitable inhabitants of that city; and as well from the existence of an inner passage, as from my own observation of the ice, I began again to entertain a hope that a south-west gale would clear a way for us, though in the direction towards which we were bound there was at present one compact mass before us to the horizon. A tide-pole which we set up showed a rise of twelve inches; the highest being at $11^h\ 40^m$ A. M., and the lowest at $7^h\ 20^m$ P.M. There may, however, in this be an error of a few minutes, and it is not improbable that the irregularity may have been augmented by the vast floating bodies of ice and other accidental causes.

August 3d. — Parties were sent out in different directions to see if there was any possibility of creeping alongshore among the grounded pieces, but they were all so close that the attempt would have been useless. Indeed, under the most favourable circumstances we could only

have reached a stony point half a mile distant, against which the ice was thrown up in heaps. The main body was still unbroken, and apparently unaltered, except to the eastward, where an E.S.E. wind had opened a partial lane, of which the termination, however, could be easily traced. Our evening was spent in the performance of divine service.

The night set in with a gale from S.S.E., accompanied by heavy rain, two powerful auxiliaries in our cause; and most agreeable was it to find in the morning that they had done good service, having crushed and heaped a great deal of ice on the beach. With the continuance of the gale the sea rose, and obliged us to move the boat and baggage farther inland; but this was done cheerfully, for there was comfort in watching the havoc made by the rolling surf. Already it had reduced a barrier of three hundred feet, which effectually blocked up the communication, to a breadth of not more than twenty feet; and this also was destroyed a little after high water at 1^h P.M.* My anxiety forbade me to rest, and I went to the most northerly part of the island, about three miles off, where, taking a station on a rock about two hundred and fifty feet high, near some marks of the Esquimaux, I perceived a consider-

* New moon.

able alteration in the position of the ice within the last twenty-four hours. It still adhered to both shores, from N.W. by W. to N. E. $\frac{3}{4}$ E., the former ridges unfortunately being nearly abreast of our encampment. These were the extremes ; but the main and central portion had opened in the shape of the letter V, to the width of from ten to twelve miles to the northward and westward; thus encouraging the expectation that it would yet be forced out as soon as the effect was felt to seaward.

To divert the attention of the men, who, having nothing to do, remembered that they would have to ascend the numerous falls and rapids they had come down, and began to magnify the difficulty, and even to talk of the impracticability of the task, I sent them all after a musk-ox, which I had by chance discovered feeding under the lee of some high rocks, and which was eventually killed. It was a young cow ; and, being devoid of the disagreeable flavour of the older animals, afforded us two luxurious meals. Mr. King shot a red-breasted phalarope, only two of which kind had before been found in a swamp near the Rock Rapid. The island, indeed, was literally covered with plover, black-breasted and brown phalaropes, and a sort of large brown duck with plumage not unlike that of the hen pheasant. These last were

divers, and were at that time busied in tending their young broods, which they defended with great courage against the attacks of a half-terrier dog that swam after them for some time, but was at last fairly beaten off. The birds here mentioned, with black and white snow-birds, boatswains, gulls, tern, brown cranes, and loons or northern divers, were the only birds which we saw. The temperature of a duck just killed was 108°, and that of the ground, which was gravelly and frozen at twenty two inches below the surface, 37°.

August 5th. — The weather was gloomy, with continued rain; and the gale kept up a heavy surf, which threw several pieces of sea-weed on the beach. I returned to my station on the hill, and was something cheered by seeing a larger space of open water than before, though the same white line of ice extended across the horizon from shore to shore at a part where the distance was estimated at five-and-twenty or thirty miles. But the beneficial effect of the wind was more clearly shown in the channel between Montreal Island and the main, which was now perfectly free; and I waited only for the first moderating of the weather to take advantage of it, as every mile, under circumstances like ours, was an acquisition of no trifling importance. The moss and a sort of fern that we

used for firing had become so saturated with the rain that they would not ignite, and we had consequently to forego our greatest comfort, the luxury of a warm cup of tea. Pemmican and water, however, served our turn tolerably well, though the least indisposed to that useful compound had long been satiated, and were now content with half the usual allowance. At 10 P.M. there was less wind, and the swell had rather abated; and although from the aspect of the clouds there was reason to expect a renewal of the gale rather than a calm, it was an occasion not to be lost, and the boat was launched. We pulled round the south-west part of the island, the northern being encumbered with rocks and shoals, which in the event of a sudden squall would have proved troublesome, and even dangerous. The tide was flowing, and therefore against us; and a dense wet fog coming on soon afterwards from the southward, enveloped us at once in cold and darkness. Having passed an extensive opening, which was taken for a bay, and received the name of the Honourable Captain Elliot of the Admiralty, sail was made on the boat; and by midnight we were opposite our old encampment. At that time not a particle of ice was visible ahead, and the men, encouraged by so unexpected a sight, put out their utmost strength at the oars to gain a blue streak of land

far away to the north; but one and all must have been under some optical illusion, for in a quarter of an hour (such is the uncertainty of all human calculations) we were entangled in drift ice, which but too evidently was the advanced guard of the main body. Several attempts were made to land, but were rendered abortive by the shoalness of the water; and it was not until $2^h\ 30^m$ A. M. that, after working with much trouble and no little risk to the boat between the thick drifting ice, we at length succeeded. The boat was then unloaded, and hauled up above high-water mark.

The weather was at this time calm, but gloomy and unsettled; and heavy rain soon followed. Having refreshed the men with a glass of grog, I appointed M^cKay, Sinclair, and Taylor, who were the best walkers, to proceed on foot along the coast as far as they could, leaving it to their discretion whether to absent themselves for a longer time than twenty-four hours, according to the probability that might exist of our getting forward. Besides noticing the state of the ice, they were desired to examine carefully the nature and trending of the western land, on their report of which depended the execution of a plan which had been for some time in contemplation, as a last resource in the event of our progress being shortly arrested.

As the day advanced, the rain fell in torrents, and of course prevented the fern from burning; but a more grievous spectacle was the dull white ice drifting again to the southward in melancholy succession towards the channel through which we had passed; and, by the occasional gleams of light which broke through the rain-charged atmosphere, we had the mortification to behold the narrow line of water on which our hopes depended gradually transformed into a compact and solid field of ice. The eastern shore was but once distinguishable; and scarcely more so a point much nearer to us, which has been called after the Honourable Captain Duncan, with whom my former friend and companion, the lamented Mr. Hood, had served in his Majesty's ship Liffey. Late at night the exploring party returned, fagged and depressed. They described the land as being low, and so swampy that at each step they sank to the calf of the leg, and were only prevented from going deeper by the frozen earth and ice, which at that depth sustained them. The day had been unfavourable for a distant view; but from a low point fifteen miles off, the coast was observed to trend westerly towards some high blue lands like mountains, where there was an appearance of open water; but whether of the sea, or of an inland lake, the atmosphere was too hazy to enable them to

determine. At the point they had counted from thirty to forty old Esquimaux encampments, and many others were seen a little farther off; from whence it may be inferred that the natives resort to this place in the winter for the purpose of catching seals. One glimpse only had been caught of the eastern coast, and that showed it set fast with ice, which was said to be jammed also against the western beach the whole way of their march. Three deer had been shot, but could not be cooked for want of dry fuel.

August 7th.—After a heavy fall of rain, the sun broke out, and a fresh S. S. E. wind drove the dark masses of cloud back to their dreary quarters in the north. In a little while, also, it effected a separation of the pieces, and a consequent general movement in the ice, which now opening a little, gave me reason to hope that we might be able to break ground, and get away at high water. But in consequence of the pressure from without, the ice near the beach had been forced half out of the water; and it cost us incredible trouble to move some of the many cumbrous pieces thus partially afloat even a few inches, so as to make a passage for the boat. This task was not achieved before 2 P.M., when the wind being fair, the sails were immediately hoisted, and on she went at the rate of about five knots an hour.

A conspicuous promontory to the eastward, blue from distance, which had been before seen from Point Beaufort, was now named after Captain Bowles, R. N.; and such was the change that had been wrought, in the short interval of a few hours, that the whole intermediate space was free from impediment, had it suited our purpose to traverse it. Indeed, the celerity with which the ice had disappeared from the part where we were now sailing was so astonishing, that the men, who were novices to polar phenomena, looked doubtingly, and repeatedly asked each other if this or that particular place were not the same which but a short time before they had seen blocked up and impassable.

From a small rocky island which was passed on the left, we made for a low sandy point, named after Sir J. B. Pechell, Bart., and remarked that, scanty as was the vegetation in the parts which we had quitted, it was here sensibly growing less and less, consisting now only of scattered tufts, gradually subsiding into sterility. So flat was the western shore that a solitary hillock five or eight feet high was a conspicuous land-mark; while the eastern coast, on the contrary, was bold and mountainous, as if defying the rage of hail-storms from the pole. The chain, however, was not of great extent; for at the end of sixteen miles it terminated in a

bluff, laid down as Hutton Browne Bluff, and a huge projecting cape, distinguished by the name of Cape Hay, after the late Under-Secretary for the Colonies, a zealous promoter of the expedition, and of geographical researches generally. This was the northern extreme of the eastern coast, which in so far coincided exactly with the outline given by the Esquimaux; but here we lost all trace of land in that direction, though from our subsequent position it must have been discovered, had it not from thence rounded suddenly off, as I believe it does, to the southward and eastward. Near 8 P. M., after a delightful sail, we overtook our enemy the drift ice; and getting hampered amongst it, in the attempt to find a passage round a low island a mile or two ahead, the northern extremity of which shut out the view of any other land in that direction, we were compelled to make for the shore, which, after considerable trouble and some risk of being "nipped," we succeeded in reaching. On landing, I directed my steps to a hillock of sand ten feet high, about two and a half miles from the beach, and in going was forcibly struck with the desert-like character of the place. It was one irregular plain of sand and stones; and had it not been for a rill of water, the meandering of which relieved the monotony of the sterile scene, one might have

Capt.n Back R.N August 8th 1834.

Engraved by E. Finden.

Thunder Storm near Point Ogle

fancied one's self in one of the parched plains of the East, rather than on the shores of the Arctic Sea. From this hillock, I discerned a deep bay, bearing south-west, of which the sandy point of our encampment (called after Vice-Admiral Sir Charles Ogle) formed the eastern extremity; while the opposite side terminated in another point bearing W.N.W. The land which encircled the bay was blue and high, and apparently much encumbered with ice, which stretched from side to side, and again northerly as far as the horizon. Still, however, there was a ray of hope, for narrow streaks of open water chequered the surface, like evening shadows on a bright lake.

Rain fell incessantly in the night, and the morning disclosed a dense wet fog, together with the unwelcome sight of closely packed ice against the shore. A little after noon there was a storm, with thunder and lightning; the first I remember to have seen so far north. The steersmen were twice sent to examine the state of the ice as far as Point Ogle (which was now found to be an island or part of the main, according as it was high or low water, being connected at the ebb by a narrow ridge of sand and stones); for the wind, having towards evening veered to the northward, threatened to carry the outside drift ice into both openings, and thereby effectually prevent our moving an inch. To obviate this, it was my intention to have poled through the inshore

ice as far as the narrowest part of the small isthmus that joined the island to the main, and then to have made a portage of boat and cargo to the west side, where, at present, there was a lane of open water, connected with that leading to the distant western land; but the immense size of the pieces, and the firmness with which they were wedged together, rendered the scheme totally impracticable. Though the thermometer was at 42°, yet, being wet, we were chilly and uncomfortable, and our cheerless condition was greatly aggravated by the want of fire. A watch was set in the night, to enable us to take advantage of any movement of the ice which might aid our progress. The steersmen relieved each other also, in going to and from the island for the same purpose; but all was in vain: it still remained packed, some even floating southward into the harbour; and, to add to our wretchedness, the rain scarcely ceased for a moment, and the weather continued raw and cold. This, together with the want of warm food, excited my apprehensions for the health of the crew, and the rather, as one (M'Kenzie) had been for some days swollen and bloated so as to be incapacitated from performing his regular duty, and, what was at this time of most consequence, from going into the water at all; happily, however, no other had as yet complained.

I again crossed over to the hillock through

a kind of quicksand, and saw the land as before, except that a high point was now visible to the south-west, which seemed to mark it as an island. To the north and west, nothing but ice presented itself to the view; but due east, I could distinguish open water and a small island. Southward, the drift ice appeared in every quarter; and the wind, which had got a few points to the westward, had already driven it close into the shore. To employ the people, they were sent in search of fern or moss for fuel; but though they went different ways to the distance of ten miles, their labour was fruitless, for they returned at night without a single particle.

At 2 P.M. it began to rain violently, and continued to do so without the slightest cessation until noon the following day (August 10th), when it was succeeded by a fog. Meantime a great part of the ice had disappeared, and the boat was soon laden and pulled to the island; but there being no channel, by which we could proceed westerly, owing to the heavy masses wedged against the shore, we made a portage, and launched the boat across. The sand-banks were found to run out several hundred yards, and the ice to seaward, being packed apparently by a westerly current, had forced the lighter pieces on shore; which, together with the shoals, embarrassed us beyond measure: however, by pushing some

few masses aside, and making a zigzag course, we managed to advance a mile; when, being again stopped, another effort was made, by causing the people to wade and lift the boat over the shoals, which was successful enough, until, the water being little more than ancle-deep, necessity compelled us to encamp. Other narrow lanes were sounded for a channel, but with no serviceable result; and the temperature of the water being only 37°, with a north-west breeze blowing, and ice to the very beach, it cannot be a matter of astonishment, and much less of blame, that even the best men, benumbed in their limbs, and dispirited by the dreary and unpromising prospect before them, broke out for a moment into low murmurings that theirs was a hard and painful duty. The boat was scarcely hauled up, when the fog grew so thick that nothing could be seen beyond a hundred yards: three of the people, however, went to look for fuel, and the remainder assembled in the tent to hear divine service.

The place where we encamped, and, indeed, every foot of this sandy soil was covered with small shells resembling cockles and bivalves. Innumerable rills of fresh water ran in opposite directions from the central ridge. About 8 P.M. the rain began to fall again, though without at all clearing the fog, and the wind from north-

west increased to a strong breeze. A shout of "What have you got there?" announced the return of the men: the jocular answer of "A piece of the North Pole" immediately brought Mr. King and myself from out the tent; and we found that they had really picked up a piece of *drift-wood nine feet long and nine inches in diameter*, together with a few sticks of smaller drift-wood and a part of a kieyack. When the large trunk was sawed, I was rather surprised to see it very little sodden with water; a proof that it could not have been exposed for any considerable time to its action. From the peculiar character of the wood, which was pine, of that kind which is remarkable for its freedom from knots, I had no doubt that it had originally grown somewhere in the upper part of the country, about the M^{c}Kenzie; and of this I was the more competent to judge from my recollection of the drift-wood west of that large river, which it exactly resembled. Though we had strong reasons to be grateful for this unlooked-for treasure, as affording us the means of enjoying a hot meal — the first for several days,—yet there were other considerations which gave it in my eyes a far greater importance. In it I saw what I thought an incontrovertible proof of the set of a current from the westward along the coast to our left, and that consequently we had arrived at the main line of

the land; for it is a fact well known to the officers of both Sir John Franklin's expeditions, that the absence of drift-wood was always regarded as an infallible sign that we had gone astray from the main, either among islands or in some such opening as Bathurst's Inlet, where, by reason of the set of the current, not a piece of any size was found.

August 11th. — A fresh breeze from the south-west had encouraged us to hope that the ice would be blown off-shore at high water; and bitter, therefore, was our disappointment at finding that, if it moved at all, it was only to become more wedged, and piled up piece upon piece. The weather, however, cleared a little, and, for a few minutes, the sun broke forth for the first time during five days. We could now make out two islands to the north, the left extremity of which was named after my intrepid friend Captain James Ross; and between it and a bluff bearing N. N. W., no land, nor any thing but ice, could be seen. To the westward along the shore where we were encamped, all was shoal, and paved with ice. Two islands, however, jutted out towards the southern bluff of the land, which there formed a point, and was apparently one of the arms embracing a bay. Progress, by any contrivance, was altogether impossible; and this, I must own, began to shake the opinion I had all

along cherished, that a strong south-west gale would clear away the ice, and give us a chance of making at least a few degrees of longitude. Some more drift-wood was found by Mr. King, who likewise saw a musk-ox, and the greater part of the vertebræ and ribs of a whale lying on the beach. A single joint of one of the vertebræ was also picked up at our encampment. It was high water at 3^h 15^m P. M.; ☽ first quarter, change.

The following morning the ice was so wedged, that for miles it was thrown up into perpendicular pieces, like a vast area of large upright slabs, or a magnificent Stonehenge. At the same time, the pressure from seaward forced acres of it on shore, along the whole line of coast, so as to preclude all possibility of our stirring in any direction; and this being so, I despatched a party, furnished with a telescope and compass, to get the bearings to the westward, and occupied myself during their absence in obtaining observations for the dip and intensity. In placing the instruments into the meridian, I was struck with the disagreement of the different needles in denoting the magnetic north. The one then used (Dollond's) was a light bar needle, and indicated several degrees to the eastward of those which had cards or any other weight attached to them. At first I felt inclined to doubt its accuracy;

but, considering its lightness and the few times that it had been used as compared with the others, as well as the fineness of the point of the pivot, and observing, moreover, its constancy in returning to zero under various trials, I at last concluded that it must be right, and adjusted the instrument accordingly. With the face of the needle to the face of the instrument, it swung more freely east and west than when turned north and south; for in the latter position it was sometimes sluggish, and jerked as if acted on by two powers, whereas in the former the motion was smooth and easy. When it was reversed the discrepancy was still more apparent, and in one instance it did not make nearly the same number of vibrations. For this strange deviation I can assign no accidental cause: on this occasion, in particular, there was not a particle of iron or any metallic substance within three hundred yards of the tent; for, having remarked on other trials the danger of having so much as a pocket knife near while the observations were in progress, I now, to be still more certain, even removed my chronometers, and took off my brace-buckles. Having got the vertical intensity, and then the dip, which agreed better than might have been expected, I tried Hansteen's No. 3. needle for the horizontal force; but I cannot easily describe the tediousness of arrang-

ing it in its meridian, which differed much indeed from the other. When it had at last settled, I drew it on one side 20°; but the intervals of ten vibrations were irregular, varying from 3′ 50″ to 3′ 45″; and though it stopped at its zero in five minutes afterwards, I found the marked end had moved easterly 6°, and so approached nearer to Dollond's. Having waited some time longer, during which it kept stationary, I made a fresh set from that zero; but the result was not more satisfactory than the preceding; and, finally, instead of settling at its last, it returned to its first zero. Had it not been for the variation in this point, i. e. the arc between the two zeros, I should have attributed, and probably with truth, the apparent difference in the interval of vibrations to the want of a fixed index or reading glass for enabling me to determine the precise moment of the turn of the needle: for so torpid was it, that it seemed actually to stop dead at the extremity of each arc, so as to render it a matter of great nicety for the observer, even when assisted by a good lens, to say when that instant was. In order to decide between the two, a set was next made with the lozenge needle, which showed an entire difference from Hansteen's of 22° in marking the north; coinciding, however, in this respect exactly with Dollond's. The delicate pocket compass, graciously pre-

sented to me by Her Royal Highness the Princess Victoria, was in this difficulty extremely useful. The intervals of the lozenge needle were, as usual, considerably shorter than those of No. 3., namely, 1′ 28″; and, what was of greater consequence in the present interesting case, they were quite regular in two several trials, and in both the needle returned to its zero without the slightest deviation. One remark I feel it my duty, as an observer, to make, though it may possibly be unfounded. On two occasions, that is, at Rock Rapid and here, No. 3. seemed to be affected, — in the one case by the accidental scraping out of a kettle while it was swinging, at a distance of one hundred and fifty yards; and in the second case by the simple scraping out of a keg. Whether the vibration produced thereby in the atmosphere was the occasion of this, I shall not take upon me to determine; but on all occasions I found it necessary, in order to prevent a swagging motion in the needle opposed to the rotatory one, to hold my hand before my mouth, so that my breath might not fall on the instrument.

No change occurred in the ice throughout the day, nor was there any alteration calculated to diminish the annoyance of being thus vexatiously detained at a time when every minute had a compound value; and to our personal

discomforts was added the want of fire, and almost of fresh water, though the precaution of filling our kegs from the scanty oozing of the shallow rills but just discernible in the sand had not been forgotten. As it was the first quarter of the moon, and just about the change, many an anxious glance was cast at the sky to windward, in hopes of discovering some token of more genial weather; and at length a gleam of sunshine broke through the murky clouds, and partly dried our wet and chilly clothes. In our situation even this was counted a blessing, and diffused a cheerfulness which, notwithstanding past disappointments, renewed the hope of better times. Soon, however, the dark clouds began again to gather, and, as the sun dipped below the northern ice, all was cold and humid as before. The exploring party returned at 11 P. M., and reported that, with hard labour, they had been able to follow the land for fifteen miles, and had gained a green hill about seventy or eighty feet high, which, being the most remarkable feature in that flat desert of sand, was named Mount Barrow, after Sir John Barrow, Bart., whose name is inseparably connected with modern discovery in the polar regions. From the summit of this height an immense opening was seen, fifteen miles wide, whose extreme bearings were S. W. fifteen, and N.N.W. thirty miles. It was

bordered on the west by low alluvial land, which stretched out from the foot of a blue range of mountains coming from the south and terminating at the extreme distance in a bluff.

Parallel to these on the right, and forming the east side, was the extensive tract of high land, of which the north-western angle was opposite the encampment: but the elevation of this latter range gradually decreased as it bent to the north; and, except in those parts where there were isolated rocks with large stones on them, the space beyond was so low, that with a telescope a white fog could be plainly descried hanging over a glittering line of ice at the farthest limit of vision to the north. That western extreme I named after my esteemed friend and former companion Dr. Richardson, R. N., many of whose opinions respecting the Thlew-ee-choh and its confluence with the sea have proved to be singularly correct. The southern point, near Mount Barrow, was honoured with the name of Admiral Sir Thomas Hardy. A little drift-wood was picked up, but no other kind of fuel could be found, though two deer were seen trotting over the ground, possibly in search of food.

August 13th. — The morning set in with rain, for which custom had now taught us to look as a thing of course; but a faint hope was excited by the view of a narrow lane of water, which had

opened—how or from what cause we knew not—outside, between the grounded ice and the main body; and preparations were already making for a start at high water, when the wind suddenly chopped round from S. E. to N. W., and fixed us once more to the spot. We crept sullenly under our sorry places of shelter, and, without uttering more than a monosyllabic answer to as short a question, prepared to pass, as we best could, the tedium of another restless night.

At 5^h 30^m P. M., when the tide was at full, the ice was wedged as before to the shore, and not ten yards of open water could be seen in any direction; thermometer 42°. About 9 P. M. there was a short lull, the ominous stillness of which was soon disturbed by an E. S. E. wind, that shortly increased to a smart gale; and it is worthy of remark, that the ice, which had remained unmoved by the wind from S., S. W., W., and N. E., now, as if acted on by magic, began to drift W. N. W. with great rapidity. I was convinced, therefore, that there must be, in that particular bearing, either a main sea or a very deep opening, to allow the escape of so great a portion of the immense extent of ice before us; for, had the dispersion continued at its then rate, a very few hours would have sufficed to clear the channel entirely. Late though it was in the season, this sudden revolution animated

our drooping spirits, and three or four anxious hours were passed in anticipating the possibility of yet floating freely on the western main. But again the inconstancy of the breeze betrayed us, and, as the rising tide moved the grounded masses off the sands, a thick fog came on, which obscured earth and sky; and the wind shifted round to N. W., which was dead on shore. The night was cold, for the thermometer sunk below the freezing point, and ice of half an inch thickness was formed on the pools near the beach.

A wet fog ushered in the morning of the 14th August, and left every object dark and indefinable at eighty or ninety paces distant. The breeze increased, and was fast packing the seaward body of ice, which now came with considerable velocity towards the shore, and threatened to lengthen our tedious and most annoying detention. To avoid this, — as to remain where we were could lead to no beneficial result, — I gave orders for the boat to be taken quite light between the few open spots of water inshore, and where impediments should occur to be lifted over, so as to return to the island, where she could be launched across, and so carried into the free space to the eastward of Point Ogle. This decisive step I was the more induced to take from having observed of late increasing symptoms of uneasiness in my leading

On Stone by L. Haghe.

WESTERN VIEW FROM NEAR BARROW

men with respect to their return; whilst, in addition to the other invalid, the health of Sinclair was also beginning to yield either to the continual exposure to cold and wet, or to this combined with the want of hot and wholesome food. The alacrity displayed by the men, on receiving my directions, unequivocally manifested their feelings at removing from so dismal a scene; and the exertions put forth in no common difficulties proved that it was not less hearty than general. The boat, being dragged across, was brought to the place of our former station of the 9th; after which the crew went back four miles for the baggage. The whole was safely conveyed over by 8 P. M., when the water kegs were burnt to make us a kettle of hot cocoa.

A fresh gale from N. W. continued, with little or no alteration, during the great part of the night; but in the morning (August 15th) the weather became calm, and the ice again set in to the southward. I went to the hillock once more, and saw one closely packed mass of drift ice extending from the beach to the horizon, beyond which there was a bright yellowish white blink. This was in the direction of the N. N. W. bluff, which I have named after my friend Captain Maconochie, R. N., of whose zeal and intelligence in the cause of geographical science I have elsewhere made mention. To the north were the same two

islands that had been previously seen, the eastern extremity of which was called Point Booth, from Mr. (now Sir Felix) Booth, whose munificent patronage of arctic discovery is too well known to need any tribute from me: they seemed to be of considerable extent. To the N. E. there were water and ice, and beyond it a dark grey, or what is denominated a water sky; while from the east to Cape Hay there was an open sea, with a single island, bearing E. by S. and laid down as Ripon Island, out of respect to the Earl of Ripon, under whose auspices and directions it was my good fortune to act. The only barrier between us and the open water was a stream of ice, about five hundred yards wide, which, for the present, was wedged against the shore, and prevented our moving.

From these appearances, the fact of the flood tide coming, so far as I could judge, from the westward, the drift-wood, and the whale, there seems good reason for supposing a passage to exist between Point Maconochie and Point James Ross. Whether the north-eastern clear space is connected with and a part of the Western Gulf of Captain Sir John Ross, I cannot undertake to determine; but I think I am warranted in an opinion that the Esquimaux outline, the sudden termination of Cape Hay, and the clear sea in that particular direction, are

strong inferences in favour of the existence of a southern channel to Regent's Inlet. On this subject it may perhaps seem idle now to speculate; but, had I not known of Captain Ross's return, and it had thus been our duty to follow the eastern rather than the western passage, there seemed no obstacle to prevent our doing so. We must have been carried nearer to the Victory, and thus, with the permission of Providence, we should have been enabled, had it been so required, to execute some part of the humane project in which the expedition originated.

I shall not attempt to describe what were my feelings at finding my endeavours baffled in every quarter but the one with which (however interesting as regarded the trending of the land) I had no concern. When the mind has been made up to encounter disasters and reverses, and has fixed a point as the zero of its scale, however for a time it may be depressed by doubts and difficulties, it will mount up again with the first gleam of hope for the future; but, in this instance, there was no expedient by which we could overcome the obstacles before us: every resource was exhausted, and it was vain to expect that any efforts, however strenuous, could avail against the close-wedged ice, and the constant fogs which en-

veloped every thing in impenetrable obscurity. No one of course can regret so much as I do that the important and interesting object of ascertaining the existence of a passage along the coast to Point Turnagain was not accomplished; but if there be any who think that little was achieved, in comparison with what was undertaken (though such a notion can hardly with justice be entertained), let them reflect that even in the ordinary pursuits of men, with all the appliances of civilized life to boot, the execution is rarely equal to the conception; and then also consider how much greater the impediments must be in a climate where the elements war against all intruders, and confound the calculations and set at nought the talents even of such men as Parry and Franklin.

I had for some time cherished the notion of dividing the party, leaving four to protect the boat and property, whilst the remainder, with Mr. King, would have accompanied me on a land journey towards Point Turnagain; but this scheme was completely frustrated by the impracticability of carrying any weight on a soil in which at every step we sunk half-leg deep; destitute of shrubs or moss for fuel, and almost without water; over which we must have travelled for days to have made even a few miles of longitude; and where, finally, if sickness had overtaken any one, his

fate would have been inevitable. Thus circumstanced, therefore, and reflecting on the long and dangerous stream, combining all the bad features of the worst rivers in the country, that we had to retrace, the hazards of the falls and rapids, and the slender hope which remained of our attaining even a single mile farther, I felt that I had no choice, and, assembling the men, I informed them that the period fixed by his Majesty's Government for my return had arrived; and that it now only remained to unfurl the British flag, and salute it with three cheers in honour of His Most Gracious Majesty, whilst his royal name should be given to this portion of America, by the appellation of William the Fourth's Land. The intimation was received with extreme satisfaction; and the loyal service performed with the cheering accompaniment of a small allowance from our limited remaining stock of spirits.

The latitude of this place was 68° 13′ 57″ N., longitude, 94° 58′ 1″ W., and variation, as well as the sluggishness of the instrument would allow me to determine, 1° 46′ W. From this it appears that we were only four miles south of Point Turnagain, which consequently bore nearly due west from us.

CHAP. XII.

Exhilarating Influence of a Hunting Excursion. — Removal of the Esquimaux. — Leave them a Bag of Pemmican. — Accident to the Boat. — Inundation of the Country. — Discovery of Esquimaux. — Wise Man of the Tribe. — Critical Position in the Rapids. — A Storm. — Adventure of a Lemming. — Encamp at Musk-ox Rapid. — Meeting with Mr. M^cLeod. — Fate of Williamson. — The Yellow Knives. — Encamp on Artillery Lake. — Reach the Ah-hel-dessy. — Depart for Montreal. — The Sauteaux Indians. — Success of a Missionary at Sault Ste. Marie. — Return to England. — Conclusion.

During the night the ice had parted sufficiently to allow of our reaching open water, and with a fair wind we went about twenty miles south, where, for the second time in nine days, we partook of a warm meal. Three stars were seen. Rain fell in abundance the whole of the night and following day; and as it was accompanied by a strong breeze, we were unable to move until 9 P. M.; when, tempted by a lull, we set

out on the traverse to the eastern shore. We were soon, however, enveloped in a thick fog, which shortly turned to a heavy rain, and drenched us to the skin. The people exerted themselves to the utmost, and yet we did not reach Point Beaufort until past two in the morning.

August 17th.—A N.W. gale set in with such fury, that we were obliged to move the boat from where she had been hauled up to a more safe and sheltered place to leeward, and there also we took refuge ourselves from the heavy squalls and the snow that now poured down in large flakes. In the evening, divine service was read.

The succeeding day brought us no better weather; and the surf and waves were much higher. I had long observed a depression of spirits in my steersmen, which I had attributed to the novelty of their situation, but I could not account for the gloom which now spread itself as if by infection over the rest; except, indeed, the artillerymen, whose steady conduct was such as to deserve the highest commendation. The thing itself was of little moment now; but as melancholy faces and melancholy weather are not agreeable companions, and thinking that some of the party would be benefited by a freer circulation of blood, I sent them to hunt, with the promise

of a glass of grog to any who should bring home something for supper. This infused some activity into them; and after an absence of a few hours, they returned cheerful and ruddy with exercise, bringing with them three fine hares and a brace of ducks, different from any that had hitherto been seen. In colour, these last resembled the bustard of the country, with black neck and bill, the latter short and more curved than in the other kinds; sepia brown plumage about the back and wings, with a mixture of black-grey, the breast a dull white, and the legs black. They had not the least fishy flavour, and, plain boiled, made us an excellent meal.

The N.W. gale gradually abated in the night, and on the 19th we proceeded towards the river, aided by a breeze from the east; and as it increased, I beheld with a satisfaction almost painful the admirable qualities of the boat, which, had there been a clear passage, would have taken us in the same gallant style to Point Turnagain. The wind freshened into a gale, and made us seek shelter and safety under the lee of Victoria Headland. Here the rain fell in torrents; and notwithstanding the additional covering of the mainsail over the tent, it was impossible to keep it out. The storm, in fact, partook more of the character of a hurricane than a common gale,

and it was with difficulty we could keep the tent up at all.

August 21. — The wind gave place to a dark wet fog, so thick that we were barely able to start by creeping along the land towards the mouth of the river; and after getting frequently on shore upon the shoals at its mouth, we entered it in the afternoon amidst heavy rain, which, however, some of the people scarcely noticed in their delight at having fairly left the ice: one, indeed, as soon as the sea was shut out from view, tossed up his cap for joy. The western range of mountains, extending to Point Richardson, was honoured by the name of her Most Gracious Majesty; others which were visible in the evening, after Francis Chantrey, Esq.; and the eastern range was distinguished after her Royal Highness the Duchess of Kent. The night was again rainy, and after a long detention we reached the lower fall, where in our descent we had found the Esquimaux. They had disappeared, which I much regretted, not only because my pockets were laden with presents for them, but because I wanted to make some more sketches, and to show them the survey of the coast as far as we had been, and obtain, if possible, some further information. The water in the river had fallen three feet, and thereby afforded a facility for launching the boat over a

point where the baggage was also carried. Having proceeded four miles farther to a line of heavy rapids, an Esquimaux was seen on the hills; and shortly after the two tents which we had before visited were discovered, pitched on the eastern bank of a strong rapid, the eddies of which probably furnished an ample supply of fish. It was impossible for us to cross without endangering the boat, and we commenced making two long portages, while the natives watched us with much composure from the opposite heights, where they were all seated in a line. As we could not attract them to us by any signs, a number of iron hoops were placed on a pile of stones, with various-coloured ribbonds attached to them; besides twenty-three awls, fifteen fish-hooks, three dozen brass rings, and two pounds of beads. All this was done under their eyes; they could scarcely fail therefore to understand its friendly import, and that our intention was to benefit them. My only fear was lest such, to them, inestimable wealth should stir up quarrels among them, from any real or fancied inequality in the distribution.

We encamped near the next rapid. It blew too hard on the following morning to allow us to move, and we saw the Esquimaux watching us from behind the rocks. About noon, two of them brought their kieyaks to the water's edge

opposite to us, with the intention, as we supposed, of crossing over; but having waited until the wind fell without any further attempt on their part to move, I left a bag of pemmican on another heap of stones as a further substantial proof of our kind intentions, and finally pushed off, taking the western rapid, which communicated with Lake Franklin. Its shallowness gave us much trouble, but with the aid of the line the boat was at length hauled up. The sails were immediately set; and though there was a considerable sea in the more exposed part of the lake, we scarcely took in a drop of water. The weather became somewhat finer as we advanced through the country, but not altogether free from rain. As we passed a rapid, a white wolf was seen swimming across with something in its mouth, which was supposed to be food for its young.

August 25th. — The rain poured down in such torrents, that the little dog woke me by scrambling under my cloak to escape from the water, which was running in a stream through the tent. The wind being with the current, our oars were of little service, and were relinquished for the line. This of course obliged us to round all the windings and small bays along the banks, and consequently lengthened the distance; but on the succeeding day, a fine leading wind took

took us to the foot of some rapids, and subsequently to Mount Meadowbank, on whose shelving side many musk-oxen and deer were feeding. In the afternoon we picked up our cache of ammunition, and by avoiding a wide opening shortened the distance to the next rapids. The tracking along the banks of this part, which was steep and covered with large boulders, mixed with smaller round stones, was exceedingly fatiguing from the uncertainty of the footing, the shingly surface generally sliding away under the pressure of each step, so that the people were constantly falling and hurting themselves. The lowness of the water too caused the navigation of many parts to be exceedingly intricate, and some which, in descending, the boat had passed over were now quite dry; nevertheless, we made such good progress that at night we encamped below the Wolf Rapid.

The next day was too foggy to allow us to start until 10 A. M., when we ascended the rapids; in one of which the boat struck so severely against a sunken rock, that she was stove under her larboard bow: however, by caulking with oakum and grease we contrived to reach our cache of two bags of pemmican, which had been uncovered, as was supposed, by the wolvereens. By this exposure to the rain a great proportion was too much damaged for consumption, and

was carefully covered up again for the benefit of the first marauder, biped or quadruped, that might have the luck to fall upon it. At this spot the boat was cobbled up; and, again pursuing the route, we reached Escape Rapid, where we found a piece of the oar which had been broken in the descent, and was now lying by a drowned deer in one of the eddies. The falls were too heavy to haul up, and it was late before we had carried every thing to the south end. A fair wind, however, was not to be lost; and, after taking up another cache in excellent order, we proceeded as far as Sinclair's Falls, near which some ice yet lingered on the banks, and the grass and moss were still of a brownish hue. The season, indeed, had been generally untoward; for there was not a single berry, and, what was more surprising, scarcely a mosquito or a sand-fly—a proof that the summer must have been an extraordinary one, and altogether different from such as had been formerly experienced. Three or four musk-bulls were seen grazing singly and apart, under the lee of rocks or sand-hills: they were not much scared at our approach; but, as they were not eatable, we did not molest them. Towards evening, two white wolves trotted past, evidently on the scent of a poor wounded deer that had taken refuge on an island about a mile from them. Having made

a portage we reached the Rock Rapid, of which we had intended to try the eastern side; but perceiving that it was certainly the less eligible of the two, we followed the old passage, and by 2 P.M. were safely in Lake Macdougall. From the summit of a rock, I saw, with surprise, that the whole country was inundated; that which in July had been dry and green being now converted into a wide swamp.

It was not without difficulty and anxiety that we ascended the long and dangerous line of rapids leading to Lake Garry, whose smooth and glassy surface presented a striking contrast to its wintry covering of five weeks ago. A sand-hill that had served the same purpose before was again selected for our encampment, and a more certain evidence of the torrents of rain that must have fallen could not have been afforded, than by the spectacle of whole fields of unbroken moss, which had been swept away in a body from the face of the summit (a height of sixty feet), and was strewed like a carpet along the beach.

August 31st.—Having made the traverse to that part where the ice had first detained us, we were rather astonished at seeing a number of marks on a point which none of us recollected to have observed when passing it before: accordingly, they were examined; and, from their apparent freshness, and the newly gathered moss

about, it was evident that they could not have been up many days. There were also numerous tracks of men and dogs on the sand. The weather was rather hazy; so that, at the moment, objects could not be clearly made out; but, as we were pulling alongshore, M^c^Kenzie thought he espied a deer on the stony summit of a sloping hill, which terminated in a point where many more marks had been erected similar to those lately left. It was, however, soon discovered to be an Esquimaux; and, presently, two more of his companions rose up from behind some rocks, where they had lain concealed until, as they thought, we were far enough from them to allow them to venture out. Convinced, from their manner, that they would have fled, we did not think it worth while to return to them, but pursued our course; and, when we least expected it, just after lifting the boat over a shoal, came suddenly upon twelve tents, surrounded by a swarm of men, women, and children; the latter of whom began to howl and cry, and fled hastily behind the rocks for protection. The former displayed almost as much uneasiness; and, each being armed with his spear and sling, hallooed and made intelligible signs, by the impatient waving of one hand, that we should not approach them. Nevertheless, we advanced, making the usual demonstration of friendship by raising up

both arms; but, when we were abreast of them, they retreated with precipitation to the tents and rocks; and, having no interpreter to dispel their fears, and unwilling to add to their consternation by landing, we pulled slowly on. As soon as they perceived this, and were satisfied that we had no intention to hurt them, an elderly man ran after us along the rocks, keeping, however, at a respectful distance; and with loud vociferations, and the same action with the hand as before, still bade us go away. He had not proceeded above a couple of hundred yards, when some of his friends prepared to follow him. This he forbade by the same wave of the hand that was used to us; and then we perceived, infinitely to our amusement, that this was the conjuror, or wise man of the tribe, and that he was at that moment imitating the growling and motion of a bear, bending himself and walking on his hands and knees, thinking, no doubt, to charm us away. It is difficult to form a correct opinion of the numbers of the party; though about sixty or seventy would probably be near the truth. We saw only four kieyaks; and I think it probable that they were inhabitants of Wager Bay, or Chesterfield Inlet.

September 1st.—Having hauled up the rapid which connects Lake Pelly with Lake Garry, we picked up our cache at the island; and subse-

quently passed another, half covered with old drift willows and quills. A herd of musk-oxen and a few straggling deer were quietly feeding on the sand-hills; and many of the white, brown, and laughing geese were flying about, and seemed to be collecting for their southerly migration.

On the 4th, a hard gale from the N. W. indicated the commencement of the fall weather; and, while we were travelling, many hundreds of geese flew high past us to the south. It was necessary to haul the boat all day; and we ascended between sixteen and twenty rapids, which, owing to the shallowness of the water, were very troublesome. Sand-banks and islands appeared in every direction, and so changed was the face of the river that it was not easy to recognise it. In the centre of the Hawk Rapid the line broke, and threw us into a very critical situation; one, indeed, which, with a less active crew, might have been followed by serious consequences. However, by clinging to the rocks until the damage was repaired, the boat was held fast, and prevented from descending again. As we advanced, the shoals and bars greatly impeded our progress; so that, in an ordinary season, the navigation would have been impracticable even for a boat entirely light.

September 6th. — The morning set in with

the promise of a fine day, and a favourable wind heightened the expectation that a considerable distance would be made; but so little are atmospheric appearances to be depended upon in this tract, that after two hours' sailing the whole sky became darkened,—a mist rose,—and the rain poured, not in drops, but in lines, as if it fell from so many spouts; the water, therefore, was soon above the stern sheets, and we landed to find shelter, and secure our remaining provision. The gale soon increased to a storm that brought with it heavy squalls and thunder, and extinguished the fire nearly as fast as it was lighted. However, by perseverance, weather cloths, and sundry other expedients, we got it at last fairly kindled—to our great contentment, for we had shot a fat deer, and were not a little eager to change our accustomed dish of old mouldy pemmican for so savoury a repast, though eaten without salt, or any of those appliances which luxury has invented for relieving the insipidity and adding to the relish of plain boiled meat. The storm continued from N. E. all night; and though the main-sail had been thrown over the tent, it was quite ineffectual to keep out the rain, which ran in streams through both. At midnight there was a partial lull, after which it freshened again, and soon blew more furiously than ever, accompanied

with snow, which on the following morning (the 7th) had covered the surface of the hills and ground around us, and given a wintry aspect to the scene. About 10 P. M. the water had risen four feet, when, for the third time, the boat was hauled higher on the bank. So completely cold and drenched was every thing outside, that a poor little lemming, unable to contend with the floods which had driven it successively from all its retreats, crept silently under the tent, and snuggled away in precarious security within a few paces of a sleeping terrier. Unconscious of its danger, it licked its fur coat, and darted its bright eyes from object to object, as if pleased and surprised with its new quarters; but soon the pricked ears of the awakened dog announced its fate, and in another instant the poor little stranger was quivering in his jaws.

September 8th. — The morning was gloomy; but as the wind had fallen, we gladly availed ourselves of the opportunity to get away, though the current was strong, and the weather so thick that it was sometimes difficult to find the right channel. About 9 the sun broke out, and allowed us to dry our wet clothes. Passing Baillie's River, we ascended the long rapid where the first Esquimaux marks were seen, and found the country on either side quite converted into a swamp. Towards evening a N. W. gale

came on, with sleet and snow, and the next morning all the creeks were solidly frozen. The cold was indeed excessive; and what with snow, squalls, and mist, we did not make much progress. The water had risen considerably, and the mud and sand cliffs were worn into innumerable ravines from the constant drainage of the upper lands. It occupied the better part of a day to get past the cascades, and a most laborious and hazardous service it was; such as assuredly would not have been attempted by any but persons situated as we were. The boat barely withstood the shocks she received, and was obliged to be repaired and caulked to keep her afloat. On Lake Beechy we had abundance of snow, and wind enough to detain us. At some distance from it we saw three hawks attack a wounded goose and a gull, which they seemed pretty certain of killing.

On September 15th we took up our first cache, which had been eaten into by the lemmings, and was partly damaged; and late in the evening we encamped at the upper end of Musk Ox Rapid, but saw no fresh traces of Indians. Only sixteen days earlier in the previous season the surrounding hills were covered with deer carelessly feeding in all directions, and every thing had the tint of summer on it: now, not a solitary deer was seen; the tea plant had evi-

dently been frozen, the dwarf birch was almost leafless, the willow was bright yellow, and the whole country was clothed in a livery of sober brown. Five musk-oxen were the only living creatures about; all others having deserted a place which the year before was teeming with life.

A northerly breeze brought on a fog, in the midst of which we crossed Musk Ox Lake, but were unable to see our way afterwards until 11 A.M., when we found ourselves abreast of Icy River, always covered with ice. Subsequently we got to the first portage on the Thlewee-choh, and on the following day (September 17th) met our friend Mr. McLeod, who with four men and two Indians had already been several days at Sand Hill Bay. The pleasure of this meeting I shall not attempt to describe. He had been long expecting us, and had passed, it seems, many anxious hours in watching the distant objects in the direction of our route. After our departure in July he had effected his return to the house with the loss of two dogs only, and had gone from thence to Fort Resolution, to take possession of the forty bags of pemmican, as well as the outfit from York Factory, which had been forwarded by the Company. As he retraced his way, he had established two

fisheries*; and having deposited the goods safe in store at the Fort, and left a trustworthy man in care of them, he proceeded without loss of time to fulfil my last instructions by coming to the Thlew-ee-choh. It was gratifying to hear that the men under his charge had conducted themselves with propriety; but the faint hope I had entertained of poor Williamson's being alive was extinguished by the intelligence that his body had been found and interred by Mr. M'Leod. The unhappy man was discovered lying on the ground, with a few sticks near him, not far from his fire. He had died, as it seemed, from famine, aided, perhaps, by the despondency so observable in his conduct for some months previous to his discharge. The cause of this dejection we were unable to discover; but so melancholy was he, that in the autumn before the house was built, and when we were all encamped around it, instead of associating with his comrades, he built himself a hut with pine branches, in which he ate his solitary meal; and frequently in the stillness of the night, when most others were at rest, this extraordinary man would be found sitting before his dwelling, with his eyes intently fixed on the dying embers of

* One fishery was opposite Reindeer Island, and the other near Point Keith, 115 miles from Fort Reliance.

his fire. He did little duty of any kind, and was treated with uniform kindness by the whole of the people, who called him Poor David, seeming to regard him as one in deep distress of mind, whom they were bound to pity. As often happens to those who go astray, he was but a short distance from the fishery he had left, and to which, as was conjectured from his having followed a track made by some of our men but two days before the ice broke up, he was endeavouring to return.

The weather since our departure had been worse than the Indians ever remembered; and they had endured in consequence more than usual misery and suffering in the privation of food. Mr. M'Leod declared that I would not recognise them, unless they had wonderfully recovered since they had fallen in with the deer. The whole of the country north and east of Great Slave Lake had been deluged with rain, and blighted by frost and snow. The same thing seems to have happened last winter, which was unusually mild to the southward, and even in the M'Kenzie, as compared with what we found it; whence it may perhaps be inferred that the bays and inlets of the sea coast were superabundantly charged with ice, the influence of which on the atmosphere would, of course, vary with the locality.

For two days the weather was so stormy, with sleet, snow, and sharp frost, that we could not move. The small lakes became solid enough to bear, and the men were occupied in fetching some meat that the Indians had killed.

Sept. 20th was a bitter frosty morning, with snow; but the wind had abated, and we set forward, leaving Mr. M'Leod to follow at his leisure, in order that he might hunt the shores of the lake, which he thought could be done advantageously. Having crossed Lake Aylmer without the occurrence of any thing remarkable, we got into Clinton-Colden Lake, and found the hills covered to the depth of two inches with snow; while the cold was so sharp that the water froze on the oars and the sides of the boat, and even stopped one of the chronometers, (No. 3093, French), which had hitherto been most regular and steady in its rate. Towards evening we got to the first rapid in the little river, and were visited by some Yellow Knives, whom we expected to find thereabout. They congratulated us on our safe return, which, considering the dreadfully bad season, had been scarcely expected. The elderly man who was ill last spring at the Fort, and whose excessive stubbornness had drawn upon him the name of Old Obstinate, was lying very ill in his lodge, his troubles being further embit-

tered by the recent loss of one of his sons. The unfortunate custom of destroying all their clothes and property, at whatever cost of time and labour obtained, had been most rigidly observed by the whole family; so that they had no other covering at this bleak season (the thermometer being 24°), than a loose and unfashioned reindeer skin, thrown carelessly and almost uselessly over the shoulders.

Mr. King, with much good feeling, went across the country during the night, accompanied by the interpreter, to see the old man, and administer to his relief. Some of the children also, who were slightly affected with singular complaints, were attended to. Having run the rapid, we called at the tents for several parcels of meat which were ready prepared for us; and I took that opportunity of asking "Old Obstinate," who, with the exception of another aged man, was the only person conversant with the country northward, whether, to his knowledge, there was any chance of getting either to Cont-woy-to Lake or Bathurst's Inlet, from any part of the Thlew-ee-choh; but he declared himself unable to answer my question farther than this, that there existed small lakes and innumerable streams that ran towards the Thlew-ee-choh, all of which, however, were rapid, and too shoal for anything larger than one of their

hunting canoes. After running another rapid, we collected more meat at a second encampment, to which the occupants of the former also, including the old man, had followed us; and as they all crowded into the tent, I showed them the survey of the river, and particularly pointed out those parts where the greatest number of animals had been seen, recommending them, in the event of any future failure, to go so far, which I assured them they might do with safety. They answered, "it was good;" but appeared too indifferent to allow me to suppose that they had any idea, at that time at least, of taking advantage of it. They looked, however, with eager curiosity at the length and windings of the river, its numerous falls and extensive lakes; and their attention was riveted to the slightest word relating to the Esquimaux. A few presents from these last to me were scrutinized with the minutest attention, and they listened in profound silence to my account of their peaceful conduct.

At night we encamped at the first pines on the western shore of Artillery Lake. While we were with the Indians in the morning, our dog had hunted and sadly pulled about a poor lemming, half torpid with cold. The first gripe had blinded it, and the little creature was now running about on the ice along the border of the

river ; while the dog, as if conscious that it could not escape, kept mouthing and playing with it. The sick old Indian was seated by the fire, joining in the half-smothered laugh which the sport created. Hereupon I rose from my seat, and calling the dog away, caught the mouse, warmed it by the fire, and when it had somewhat recovered its strength, laid it gently down at the entrance of a burrow in the sand-bank, into which it soon disappeared. I then threw in a piece of fat after it for food. As I anticipated, the Indians were not inattentive to what was passing ; and when I pointed to the infirm old man near them, and said that the helpless should be protected, they understood the meaning of what had been done, and with expressions of satisfaction promised to remember it.

The weather still continued squally, with snow ; but the breeze being fair, the foresail was hoisted, and about noon of the 24th we got to the Ah-hel-dessy, where we were greeted by the sight of berries. Some Indians encamped in a bay made signs for us to go to them, which being disregarded, they ran after us to say they had plenty of meat : however they were directed to bring it to the Fort. The descent of this small but abominable river was a succession of running rapids, making portages, and lowering down cascades ; and much time was occupied in pre-

vious examination, without which precaution we dared not stir a yard; still the rapids increased in number and difficulty, until at last a deep and perpendicular fall, (which I have named after Capt. Anderson, R. A.), rushing between mountainous rocks into a vast chasm, stopped all further progress. The steersmen, unwilling to be arrested even by such obstacles, went some distance farther, but soon returned with an account of more falls and cascades. To convey the boat over so rugged and mountainous a country, most of the declivities of which were coated with thin ice, and the whole hidden by snow, so as to render mere walking difficult enough, was obviously impossible; and though it was annoying to be forced to leave her, yet, as there was no alternative, she was safely hauled up among some willows and secured, until she could be brought away on sledges in the following spring. A cache was also made of the sails, meat, &c., a great part of which, as was afterwards found, was destroyed by the wolvereens, which, apparently out of mischief, cut the towing line into short lengths of from one to two feet, tore the sails and covering into rags, and so gnawed a bag that the two hundred balls it contained were strewed about, and most of them lost. There is, in fact, no guarding against these animals; their strength, as

compared with their size, is enormous, as may be understood from the fact that most of the stones used in forming this cache were, singly, as much as two able men could lift.

Each of the crew being laden with a piece weighing seventy-five pounds, we began our march to the Fort across the mountains, now entirely covered with snow four inches deep. The small lakes and swamps were also frozen hard enough to bear a passage across. We had not proceeded more than six or seven miles, when observing the spray rising from another fall, we were induced to visit it, and were well consoled for having left the boat where she was. From the only point at which the greater part of it was visible, we could distinguish the river coming sharp round a rock, and falling into an upper basin almost concealed by intervening rocks; whence it broke in one vast sheet into a chasm between four and five hundred feet deep, yet in appearance so narrow that we fancied we could almost step across it. Out of this the spray rose in misty columns several hundred feet above our heads; but as it was impossible to see the main fall from the side on which we were, in the following spring I paid a second visit to it, approaching from the western bank. The road to it, which I then traversed in snow shoes, was fatiguing in the extreme, and

scarcely less dangerous; for, to say nothing of the steep ascents, fissures in the rocks, and deep snow in the valleys, we had sometimes to creep along the narrow shelves of precipices slippery with the frozen mist that fell on them. But it was a sight which well repaid any risk. My first impression was of a strong resemblance to an iceberg in Smeerenberg Harbour, Spitzbergen. The whole face of the rocks forming the chasm was entirely coated with blue, green, and white ice, in thousands of pendent icicles: and there were, moreover, caverns, fissures, and overhanging ledges in all imaginable varieties of form, so curious and beautiful as to surpass any thing of which I had ever heard or read. The immediate approaches were extremely hazardous, nor could we obtain a perfect view of the lower fall, in consequence of the projection of the western cliffs. At the lowest position which we were able to attain, we were still more than a hundred feet above the level of the bed of the river beneath; and this, instead of being narrow enough to step across, as it had seemed from the opposite heights, was found to be at least two hundred feet wide.

The colour of the water varied from a very light to a very dark green; and the spray, which spread a dimness above, was thrown up in clouds of light grey. Niagara, Wilberforce's Falls in

Hood's River, the falls of Kakabikka near Lake Superior, the Swiss or Italian falls, — although they may each "charm the eye with dread," are not to be compared to this for splendour of effect. It was the most imposing spectacle I had ever witnessed; and, as its berg-like appearance brought to mind associations of another scene, I bestowed upon it the name of our celebrated navigator, Sir Edward Parry, and called it Parry's Falls.

September 27th.—The journey was resumed at an early hour. On passing my resting place of the preceding spring, I was surprised to see the havoc caused by the summer storms, which had uptorn by the roots and laid prostrate the tallest pines of the forest; and the devastation was even greater as we neared the lake. Late in the forenoon we arrived at Fort Reliance, after an absence of nearly four months; tired indeed, but well in health, and truly grateful for the manifold mercies we had experienced in the course of our long and perilous journey. The house was standing, but that was all; for it inclined fearfully to the west, and the mud used for plastering had been washed away by the rain. The observatory was in little better state; and my canoe had been splintered by lightning. Nothing, in short, could present a more cheerless appearance for a dwelling: but the goods, and

some meat brought by the Indians, were dry in the store; and, after three hours' rest, the men were set to work about the necessary reparations.

The old Indian who had been, when a young man, at Hood's River, happened to be at the Fort; but he could not afford me the slightest information about the country near Bathurst's Inlet, nor did he know of any other way of getting there with small canoes. "But," said he, "why does the chief ask me, when he is the only one who has been there?"

This was a grievous disappointment; for, could I have obtained the least information to be depended upon, I had a strong wish to try if some communication might not be found between Lake Beechey and Back's River, by crossing the mountains in a line towards the latter, and taking with me materials to build canoes there. But, to accomplish this, without any previous knowledge of the route, would have occupied one or probably even two seasons more, and would have required an entirely fresh set of men, and much additional expense. When we had reached Bathurst's Inlet, there would have been the chance of finding it full of ice; and, even on the supposition of its being perfectly free, we could not, in any manner, reckon on more than three weeks for performing the distance between this place and Ross Pillar or Point Richardson.

To go by the Thlew-ee-choh again was out of the question; since, independently of its dangers, it led to the wrong end for a favourable passage along the coast, the eastern portion being probably always more or less hampered with ice brought by the current from the westward. Upon these considerations, and influenced, moreover, by a feeling that I was not authorized to swell the expense of a service the original object of which had been happily anticipated by Providence, I relinquished, though with sincere reluctance, the further prosecution of its secondary purpose as altogether hopeless from this particular quarter.

It remained, therefore, only to make arrangements for passing the winter as comfortably as our means would permit; and, as there was not the remotest probability that there would be sufficient food at the house for the consumption of the whole party, all except six went with Mr. M^{c}Leod to the fisheries, conveying, at the same time, to the Company's establishment at Fort Resolution, the various bales of goods and other articles which we did not now require. A great proportion of the pemmican also was deposited in store there, for the use of the expedition in its passage through the country.

The Indians brought us provision from time to time; and our friend Akaitcho, with his fol-

lowers, though not very successful, was not wanting in his contributions. The name of this chief is so associated with Sir John Franklin's first expedition, that it may not be uninteresting to say a few words about him here. He is no longer the same active and important person that he was in those days; for, besides the infirmities that have crept upon him, he has grown peevish and fickle. His once absolute authority is consequently reduced to a shadow; and, with the exception of his sons and his own family, he can scarcely boast of a single subject or adherent in his summer excursions to hunt. During winter, however, the clan still keep together as formerly.

The Yellow Knives have drawn vengeance on themselves by their wanton and oppressive conduct towards their neighbours, the Slave Indians; an inoffensive race, whom they plundered of their peltries and women on the most trifling occasions of dispute, and too often out of mere insolence, and the assertion of that superiority with which the fears of the Slaves invested them. At last, after submitting to every scourge that the ingenuity of barbarism could inflict—after beholding their wives and daughters torn from their lodges, and their young men branded with the badge of slavery, they were suddenly animated with a spirit of revenge; and, in one season, partly by treachery and partly by valour,

annihilated the boasted ascendency of their tyrants. From this contest dates the downfall of the Yellow Knives: their well-known chiefs, and the flower of their youth — all who had strength or ability were massacred; and the wretched remnant were driven from the rich hunting grounds about the Yellow Knife River to the comparatively barren hills bordering on Great Slave Lake. This revolution in their fortunes, followed as it was by suspicion, fear, and discontent, has sensibly affected the race itself, and entailed a degeneracy from which they will probably never recover. There cannot now be more than seventy families remaining; and these comprise few able men, the greater proportion being aged, infirm, and decrepit, who are regarded as burthens upon the more active and working portion of the community. To complete their calamities, they have been visited by a contagious disease, which is fatally prevalent: slowly, but surely, this is consigning them to death, and, without such assistance as it is feared cannot be rendered, must eventually sweep them away from among the tribes of the north.

Their speculations regarding the creation, &c. are dwelt on at length in Franklin's Journey to the Polar Sea; but most of them are either forgotten, or strangely distorted by the present generation, who content themselves with a sim-

ple belief in the existence of One Great Spirit, who rewards the good and punishes the evil-doer. I was once speaking to the Camarade de Mandeville, a Chipewyan chief, on this subject, and was endeavouring to impress on his mind a few moral precepts for his future guidance, to which he listened with the most profound gravity and attention. When I had concluded, he raised his head a little, and, with eyes fixed on the floor, said, in a low and solemn tone, "The chief's words have sunk deep into my heart; and I shall often think of them when I am alone. It is true that I am ignorant; but I never lie down at night in my lodge without whispering to the Great Spirit a prayer for forgiveness, if I have done anything wrong that day."

The Chipewyans, although they sometimes associate with the Yellow Knives, never do so without caution and watchfulness. Indeed, with the exception of seven or eight, who were in constant broils, they kept aloof, and came to the Fort at a time when they knew the others were absent. These people are by no means wanting in shrewdness, when occasion offers for the display of it. Mr. M'Leod was reproving one of them for the bickerings he had had with the other tribe; and, after expostulating with him on the danger of so bad an

example, informed him that they were all brothers, created by the same Power, which made no distinction between man and man, but regarded every one according to the quality of his actions; that they should be kind, therefore, and charitable towards each other, for that such conduct was pleasing to the Great Spirit. "Ah!" said the Indian, with a heavy sigh, "that is good; and if the chief wishes to teach us in that way, which is very good, let him show that *he* fears the Great Spirit, and give me a gun to hunt with; for my family are starving."

While Akaitcho and his followers were at the house, I repeated to them what I had previously told the others respecting the river, and the distance they might venture down it without falling in with the Esquimaux, whose vociferations and threatening manners were explained as being harmless, and their character described as peaceable and unoffending after a first interview. But Akaitcho observed that they were difficult people to talk with, and he did not think that any of his tribe would go near them, though for his own part he was sorry he had not accompanied me.

A few presents were given to them, and they went away to the westward well contented. The Chipewyans also directed their steps towards the Athabasca, and left us in our cold and

solitary dwelling to bear the brunt of another winter.

The instruments were placed in the observatory, the registers recommenced, and we found full employment in constructing the chart, writing our journals, making drawings, &c. &c. An hour every other night was devoted to the instruction of the men; and divine service was read every Sunday, which was always held sacred as a day of rest.

The tedium of the long evenings was most agreeably lightened by the early arrival of our packet from England, containing not only letters, but valuable periodicals, and a file of the "New York Albion," kindly sent by Governor Simpson. I had made some provision for a treat to the men on New Year's Day; and accordingly they all came with Mr. M'Leod from the fisheries, and our evening commenced with some sleight-of-hand tricks with cards, &c. The men who performed these were dressed up for the purpose; and having huge beards and mustachoes of buffalo skin, as well as a pioneer's cap of the same stuff, looked so droll, and in their anxiety not to go wrong in their parts, in which they were not quite perfect, maintained so serious a countenance, that their very appearance produced peals of laughter. His Majesty's health was then drank with three cheers; and

the people were set down to a feast, consisting of a preparation of meat and fat fried in batter (*i.e.* flour and water), with cakes sweetened with treacle; after which they sang and danced, and, to use their own expression, "had grog to their hearts' content." In fact, they were all thoroughly happy, and I was scarcely less happy in seeing them so. In a few days they returned to their several stations, and left us to our former solitude.

Our next visitors were of a more lean and hungry kind, being a troop of eighteen white wolves, which obliged us to secure the dogs by keeping them within the house during the night. They would come when every thing was quiet, prowling about the door; and frequently as we went to observe the needle at midnight, they were within sixty paces of us on the border of the lake, or sneaking about the woods, but always retreated to a short distance when they saw any one move. Two were caught in traps, and one was shot by a spring gun, but they were immediately devoured by the others, the only remains found in the morning being the heads and legs. One of their decoys was as follows: two or three would lie down on the ice a few hundred yards in front of the house, in order to entice the dogs, which sometimes ventured a little way towards them;

and on one occasion when two of them were thus lying in wait, my little terrier, which had been bitten in the neck only two nights before, ran with other five dogs to within about fifty paces of them, when the larger of the two instantly singled it out, and after twice missing, finally seized it by the neck, and carried it deliberately away. By mere accident I happened to be looking through a pane of glass in that direction just as the poor little thing was in its jaws. An alarm was instantly given to the people, who hounded on the dogs, and a general chase was given. The wolves contented themselves with trotting until we were gaining on them, when the one which had the little dog put it down, and seizing it afresh by the back, increased its speed, and took to the woods. Here, after a long run, the interpreter and Taylor came up as it was taking its first bite, quite heedless of the dogs, which had not the courage to attack it. The interpreter's gun missed fire; but the wolf was frightened and ran away, leaving its victim still alive, though it died soon after from its wounds. During the winter we caught five more, among which was the delinquent, and the rest finding nothing to live upon went away. The weather was severe at first, but after January it became unusually mild; and as it was necessary for me to return by way of Canada,

the dogs and sledges were got ready early in March. I then directed Mr. King to proceed at the proper season with the Europeans to York Factory, when they would embark in the Company's ship for England; and taking leave of my companion, on the 21st of March I went towards the fisheries, where, having bade farewell to my esteemed friend Mr. M'Leod, I set out, and shortly reached Fort Resolution. Here having been kindly supplied with every thing necessary to forward me, on the 10th of April I arrived at Fort Chipewyan, where I was also hospitably entertained by Mr. E. Smith, a chief factor in the Company's service.

I was informed that the winter had been unusually mild round Chipewyan, as well as in the neighbourhood of Peace River, and that very little snow had fallen at either place. The accounts of the atmospheric register kept on the banks of the M'Kenzie River gave a similar result; while at Fort Reliance the cold, though considerably less severe than that of the preceding season, had still been so keen that the daily walk for exercise on the wood track behind the Fort could not be taken without the risk of being frost-bitten. Many of the people, indeed, suffered severely in this way while going to and from our fishery, when, as we afterwards learned the weather a little to the westward was mild, and at times almost warm; so that it is evident

the degree of cold at one place, furnishes no inference which can be relied upon as to the temperature of another place even moderately distant.

About the beginning of May, the whole of the lake began to look black and decayed: pools of water were soon formed, and then a channel, which gradually extended itself among the islands and along the shoal parts near the shore. By the 15th swans, geese, and different kinds of ducks appeared in large flocks, and were welcomed scarcely more as harbingers of spring than for the amusement of shooting them, and the grateful change which they afforded to the table. Martins and other small birds soon followed. Vegetation also now made rapid progress; anemones came into flower, the catkins of the willows underwent hourly change, and the small leaf of the birch expanded itself almost perceptibly. Many women of the Fort were at this time also industriously employed in collecting the sap of these useful trees, for the purpose of making a sirup used as a substitute for sugar, of which they are extravagantly fond.

Crops of potatoes and barley are sometimes grown at Chipewyan; but these in the past season had failed, owing, as I imagine, to the proximity of the places of culture to the lake, and their consequent exposure to the chilling winds so prevalent here about the autumn and spring. Another trial, however, was now made, and

seed again sown, in the hope of a more fortunate result.

On the 23d of May, some boats laden with furs, &c. arrived from the post on Peace River, whence they also brought a cow and calf, and thereby supplied us with luxuries till then untasted at Chipewyan. A few days after, two gentlemen made their appearance from the Company's farthest establishments to the south-west of the Rocky Mountains, a long and tedious journey, which they had performed partly on horseback and partly in canoes. They were sensibly affected by the change of temperature, and remarked that the difference even within a few days was like the transition from summer to winter.

Chilly N.E. winds had prevailed for nearly a fortnight, and when these blew fresh the ice from that quarter drifted down in large quantities, and blocked up the channel, which at other times, under favourable circumstances, was clear enough to afford a passage out of the lake. On such occasions I was naturally anxious to get away, although unwilling to do so in the absence of my interpreter Thomas Hassel. He had remained at Fort Resolution at his own request, as substitute for the interpreter of that post, removed in consequence of illness to Fort Reliance for the benefit of the attention of Mr. King, under

whose treatment, I may add, he speedily recovered. The morning of the 28th of May, however, was so fine, and the channel so free from obstruction, that I immediately prepared for my departure, having arranged that Hassel should follow in one of the Company's boats, and take the place of the person who was appointed to accompany me. Accordingly, provided with every thing that was necessary for the journey, I took leave of my kind friend Mr. Smith, of whom it is but justice to say that he had neglected nothing which might contribute in any degree to my comfort while under his hospitable roof.

After several detentions, principally from gales of wind, I got to Norway House, in Jack River, on the 24th of June, and found many persons there suffering from influenza. Mr. Simpson had been obliged to go to Canada; but had directed every thing necessary to be in readiness, that my progress might not be delayed. Having, therefore, examined the accounts and charges for the goods received by the expedition from the Company, and left some brief directions for Mr. King, I set out very shortly for Montreal, with a crew of Iroquois and Canadians substituted for my own men, who, at their own request, were now discharged from the service. I next crossed Lake Winnipeg, and arrived at Fort Alexander,

where we provided ourselves with a stronger canoe, better adapted for ascending the river.

As we approached Rainy Lake, numerous deserted huts of the Sauteaux Indians were seen on each side of the river, generally near rapids, where they spear the sturgeon as it struggles to ascend the current. The arrival of these fish is their season of feasting; for the large animals being nearly extinct, they often experience great difficulty in procuring food enough for subsistence; and, indeed, were it not for the wild rice, which happily grows spontaneously round the lake, and which they have prudence enough to gather up for winter consumption, their condition would be most deplorable. In proof of the wretchedness to which they are reduced, it is only necessary to look at the many young trees which have been stripped of their bark to afford them sustenance. Still these people are, or rather, when we saw them, were more than commonly robust, and had an air and carriage greatly superior to the more peaceable tribes of the north. The almost constant state of warfare existing between them and the Sieux Indians makes them daring, and gives them a peculiar strut, assumed, probably, for the purpose of intimidating their adversaries. On one occasion, as we were crossing a portage close to the American lines, some of these Indians came

to us with a few fish, ostensibly for the purpose of exchanging them for tobacco with the *voyageurs*, but in reality to pilfer anything they could conveniently carry away. However, they were narrowly watched; and nothing was missed until at the moment of starting, when one of our Iroquois, leaping on shore, went directly up to an elderly Sauteaux, who was quietly seated on a rock, pushed him aside, and discovered his hat, which the old fellow had dexterously contrived to secrete under his dress. This detection so annoyed him, that when the canoe was pushed off from the land he began pelting us with stones, but desisted on my holding up my hand in token of disapprobation.

The river Kaministiquoya was found so shallow that three or four of the crew were obliged to walk along the banks; and in attempting to make a short cut through the woods they got bewildered. After endeavouring for a short time in vain to recover the track by which they had entered, one of the number climbed a pine-tree, in the hope of descrying the river; but unfortunately, in grasping one of the topmost branches, he unconsciously disturbed a wasp's nest, suspended just above his head; and so instantaneous and fierce was the attack upon his face and eyes, that the poor fellow tumbled, rather than came down, covered with stings, and vociferating loudly for as-

sistance. The report of a gun fired about the same time, enabled the stragglers to rejoin the canoe.

At Sault Ste. Marie, which I reached about the end of July, I met with a most hospitable, and, indeed, flattering reception. Major Codd, the commandant of the American garrison, paid me the extraordinary compliment of receiving me with a salute of eleven guns. In the evening of the same day, I had also the gratification of passing a few hours at the mission-house of the Rev. W. M^c^Murray, whose pious endeavours to reclaim the poor Indians in that district are deserving of the highest praise. In the short space of two years, this exemplary man has received into his fold no fewer than two hundred converts; and has established a school, attended, not unfrequently, by fifty scholars. By the liberality of the government, a school-house was then in the course of erection for the use of the mission; and the appointment of a schoolmaster was in contemplation. Houses were also building for the accommodation of at least twenty Indian families, who were to be instructed in agriculture, for which they were said to have manifested a decided inclination. Nor has Mr. M^c^Murray confined his exertions to his own immediate neighbourhood, some of the more zealous members of his congregation having been despatched along the northern shores of Lake

Superior to visit their brethren about Michipicoton, who were anxiously seeking for instruction. A translation into Chippewa of the catechism and part of the common prayer of the church, executed by Mr. M^c^Murray, and printed by direction of the committee at Toronto, has been supplied for the use of the scholars and the mission generally; but the finances of the society are unequal to the excellent work they have in hand even at Sault Ste. Marie alone. "Incalculable good," says the worthy missionary, "might be done in these northern regions, were the attention of the Christian world once engaged in behalf of the benighted inhabitants. There is work, I might safely say, for a hundred missionaries." Could not some means be adopted for aiding, by subscription or otherwise, the benevolent views of this zealous friend of the human race? I have spent many years of my life among Indians, and may be excused for feeling a more than common interest for their welfare. Nor, in dismissing this subject, can I forbear from quoting a part of the fourth annual report of the society, &c. at Toronto, for the year ending October, 1834: —"It is by no means a circumstance of the least interest connected with the mission at the Sault Ste. Marie that it promises, at some future period, to be the centre from which the light of Divine truth will radiate to all

the heathen tribes of that remote region; to a portion of whom *native speakers*, proceeding from the mission at the Sault, have already carried such a knowledge of Christianity — by no means inconsiderable — as they have themselves acquired under its instruction."

Returning exactly by the same route, in preference to the more circuitous one by the American steam boat, I arrived on the 6th of August at La Chine, having since I quitted it travelled over a distance of seven thousand five hundred miles, including twelve hundred of discovery.

Both at Montreal, and in my passage through the United States, I experienced every where the same kind attentions. My baggage was not inspected by the officers of the customs; and every thing was done or offered which could minister to my convenience.

At New York I embarked, on the 17th of August, on board the packet ship North America, and arrived at Liverpool on the 8th of September, after an absence of two years and nearly seven months. Mr. King, with eight of the men, reached England in the Hudson's Bay Company's ship in October. Much fatigue had been undergone in transporting the stores of the expedition over the ice to Fort Resolution; and it was as gratifying to me to learn, as it was creditable to him to

have to report, that the long and tedious journey from Slave Lake to York Factory had been unattended by a single calamity.

On my arrival in London, I had the honour of laying my chart and drawings before the Right Hon. Lord Glenelg, Principal Secretary of State for the Colonies, — under the orders of which department, as already stated, I had proceeded, — and also before Lord Auckland and the Board of Admiralty. I was soon after honoured with an audience by His Majesty; who was condescending enough to manifest a gracious interest in the discoveries which it had been my good fortune to make, and to express his approbation of my humble efforts, first in the cause of humanity, and next in that of geographical and scientific research.

APPENDIX.

APPENDIX.

THE names of the distinguished persons affixed to the following papers on natural history are of themselves sufficient to command attention to their productions; but I feel called on again to state that the merit of making the collection of which they give an account is entirely due to Mr. King, who, I am convinced, had our means and opportunities of conveyance been more favourable, would have still added to the number of specimens brought home. We were without the kind of shot calculated for killing small birds, inconvenienced by want of room in our single boat, and assailed by almost constant rain, while the barren grounds afforded little beyond moss for fuel. In such circumstances, much credit is due to him for the zeal and perseverance which he evinced, amid difficulties of so varied a nature.—G. B.

No. I.

ZOOLOGICAL REMARKS,

BY JOHN RICHARDSON, M.D. F.R.S. &c.

FEW people in this country have a correct notion of the magnitude of that part of America which lies to the north of the great Canada lakes; and it may not therefore be out of place to inform the reader, that the area of the

territory in question is about equal to the portion of the old continent which would be cut off to the northward by an imaginary line running from the Bay of Biscay, through the Gulf of Lyons, the Adriatic and Black Seas, to the Caspian and Lake Aral, and from thence north-eastwardly to the sea of Ochotsk, thus comprising twenty-seven degrees of latitude, and in the sixtieth parallel upwards of one hundred degrees of longitude: or, Captain Back's journey from New York to the Gulf of Boothia may be likened to that of a traveller who should embark in a canoe at Naples, and proceed up or down various rivers, and across portages, until he reach Arkhangel and the entrance of the White Sea. In a country embracing so many parallels of latitude, and presenting a surface so greatly varied by hill and dale, woods and prairies, we may naturally expect a considerable variety in its ferine inhabitants; and those which exist in America are highly interesting to the zoologist, as being less perfectly known than their European representatives,—while, at the same time, their range having been as yet scarcely restricted, or their habits influenced, by man, they offer instructive studies to the naturalist. It is in North America alone that opportunities occur for observing the curious operations of the beaver, which are guided by an instinct almost surpassing human reason: there too we may watch the regular migrations of the bison and reindeer to their wonted feeding-places or remote retreats where they bring forth their young; and note the periodical flights of birds proceeding in immense flocks from warmer and more populous climes to the secluded shores of the Arctic Sea. The ichthyologist too, who shall devote his time to the investigation of the fresh waters of that country, and of its several bounding seas, will reap a rich harvest; and

the entomologist who may travel thither, will be delighted with the unexpected burst of insect life which enlivens the air and fills the waters as soon as winter has passed away.

The distribution of animals has a close connection with climate; and though this is not the place to enter into a lengthened discussion on that important subject, yet a few remarks may be appropriately made on the difference between the climate of Europe, and especially of its sea-coasts, and that of the interior of North America. In the former, the winter is tempered by the warm breezes which sweep over an open sea; and, except in very high latitudes, the ground is seldom covered with snow for a great length of time, or vegetation completely arrested by frosts of long duration. Most of the grass seeds (not objects of culture) that have been matured in the summer fall to the ground in the autumn, and, if the season be moist, have already germinated before the conclusion of winter. The perfection of what has been termed by way of distinction a *maritime climate* may be observed on the west of Ireland, or, still more evidently, in the islets or "holmes" of the Shetland and Orkneys, which, lying between the sixtieth and sixty-first parallels, are green during the whole winter, affording pasture to numerous flocks of sheep: but this mild winter is coupled with a less genial summer. The growth of the cerealia and of the most useful vegetables depends chiefly on the intensity and duration of the summer heats, and is comparatively little influenced by the severity of the winter cold, or the lowness of the mean temperature of the year. Thus, in France, though the isothermal lines, or lines of equal annual heat, bend to the southward as they recede from the coast, the bounding lines of culture of the olive, maize, and vine,

have a contrary direction — that is, incline to the north-eastward,— which is attributed to the low summer temperature along the coast.

In North America, the decrement of the mean annual temperature incident to the increase of latitude is much greater than in Europe; and there is also, especially in the interior, a much wider difference between the summer heat and winter cold, — the increase of vernal heat being sudden and great. On the north shore of Lake Huron, which is nearly in the same parallel with the bottom of the Gulf of Venice, the snow covers the ground for nearly half the year; though the mean heat of the three summer months, amounting to 70° of Fahrenheit's scale, equals that experienced at Bourdeaux. Cumberland House, having the same latitude with the city of York in England, stands on the isothermal line of 32°, which in Europe rises to the North Cape in latitude 71°; but its summer heat exceeds that of Brussels or Paris. Humboldt informs us that, in countries whose mean temperature is below 63°, spring, or the renewal of vegetation, takes place in that month which has a mean heat of 33° or 34°, and deciduous trees push out their leaves when the mean reaches to 52°; thus, the sum of the temperatures of the months which attain the latter heat furnishes a measure of the strength and continuance of vegetation. Lake Huron, in latitude 44°, enjoys five of these months; Cumberland House, three; and Bear Lake and Fort Enterprise, both in latitude 64½°, only two: all these places have an interior or continental climate. At Winter Island, on the eastern coast, in latitude 64¼°, and at Igloolik, in latitude 66⅓°, no month in the year attains a mean heat of 52°; and at Churchill, in latitude 59°, the summer heat does not exceed that of Bear Lake, being 10° less than that which is ex-

perienced in the same parallel in the interior of the continent.

The phenomenon of the isothermal lines sinking on the western coast of Hudson's Bay, instead of rising as they do on the eastern coast of Europe, has been variously accounted for. Dr. Brewster assumes two northern poles of cold, and places one of them on the meridian of 92°, which is the longitude of Churchill; but we think that the peculiarities of the climate of this part of the country may be greatly owing to the configuration of the land. The coast to the northward is deeply indented by gulfs and sounds, and fringed by numerous islands, among which the drift ice is detained until late in the season. This melting depresses the summer heat; while the ice-covered sea has little or no effect in tempering the cold during the winter. The subsoil north of latitude 56° is perpetually frozen, the thaw on the coast not penetrating above three feet, and at Bear Lake, in latitude 64°, not more than twenty inches. The frozen substratum does not of itself destroy vegetation; for forests flourish on the surface at a distance from the coast, and the brief though warm summer gives birth to a handsome flora, matures several pleasant fruits, and produces many carices and grasses.

The direction of the northern termination of the woods shows the gradual ascent of the isothœral lines (or lines of equal summer heat) as they recede from Hudson's Bay. On the coast near Churchill the woods cease about the 60th parallel; but at the distance of fifty or sixty miles from the sea their boundary rises rapidly to the northward, and then takes a nearly straight W.N.W. course until it reaches Great Bear Lake, in latitude 65°. The most northerly tree is the white spruce; but the canoe birch, which is deciduous,

terminates only thirty or forty miles to the southward of it; and we thus possess the means of ascertaining how far to the north a summer temperature of 52° extends. But, in fixing this limit, some allowance must be made for altitude, and the nature of the soil. Thus, on the low alluvial delta of the Mackenzie, the spruce fir reaches the latitude of 68°; and the banks of that river generally are better wooded than the more elevated rocky tracts which lie to the eastward.

The permanence of the frosts when once they set in is a feature of the climate of the fur countries which requires to be noticed here, as it influences the distribution of graminivorous and herbivorous animals * by modifying their supply of food. The carices and grasses have scarcely matured their seeds before they are frozen up for the season while their leaves are still full of sap; thus they continue to afford good pasturage until the spring, and they drop their seeds only when the melting snow has prepared the ground for their reception. The sparrows and buntings profit by this vernal harvest. In like manner the Vaccineæ, Arbuti, and several other berry-bearing shrubs, retain their fruits until the same period, when they yield food to the bears, just awoke from their winter sleep, and to large flocks of geese winging their way to their breeding places.

The northern boundary of the woods is the limit of the range of the black bear, the American fox, the pine-martin, the fisher, the lynx, the beaver, several marmots, the American hare, the moose deer, the Canada partridge, the woodpeckers, &c. The " barren

* Beasts and birds of prey depending on these tribes for subsistence are also thus influenced in their distribution by the powers of vegetation.

grounds" to the northward of the woods have also their appropriate inhabitants, such as the brown bear, the arctic fox, Parry's marmot, the polar hare, and the musk ox. The small variety of the reindeer winters within the verge of the wooded country, but travels to the northward in the summer, and drops its young on the sea-coast. The wolf and the wolverene inhabit woods and barren grounds indifferently, and the polar bear seldom travels inland. The "prairies," or woodless plains, which skirt the Rocky Mountains from the 55th parallel down to the Mississippi, and enjoy milder winters than the more easterly districts, have another set of inhabitants, of which the bison is the most important. This animal feeds in countless herds on the grass of the prairies, and furnishes food to a much greater Indian population than the wooded districts can support. The bison exists also in the woods up to the 62d parallel, though in much smaller numbers, but it does not travel to the eastward of the 105th meridian; and a few stragglers only have found their way across the mountains to the fertile and comparatively temperate country which skirts the Pacific. The prairie wolf, the kit-fox, and various marmots are peculiar to the plains; and the ferocious and powerful grisly bear, though most abundant on the alpine declivities, also ranges for some distance over the flat country to the eastward.

The north-west coast which we have just alluded to has a climate more like that of the east coast of Europe in its temperature than any other part of North America: but it is very moist, owing to the vicinity of the Rocky Mountains. The summits of this range are inhabited by a wool-bearing goat named *Capra Americana*, and the declivities by the *Ovis montana*, or mountain sheep. The country nearer the Pacific coast is fre-

quented by a fox more closely resembling the European one than the *Canis fulvus* of the eastern territory does. The moose-deer, reindeer, wapiti, with several others of the genus, known to the traders under the name of mule-deer, jumping deer or cabree, fallow-deer or chevreuil, and the prong-horned antelope, also inhabit New Caledonia and the banks of the Columbia.

The following is a list of the specimens procured by the expedition, with a reference to the pages of the Fauna-Boreali Americana, where they are scientifically described: —

Vespertilio subulatus, F.B.A. 1. page 3.
Mustela (Putorius) erminea - 46.
vison - - 48.
Lutra Canadensis - - 57.
Lupus occidentalis, *griseus* - 66.
Canis familiaris, *Canadensis* - 80.
Castor Americanus - - 105.
Fiber zibethicus - - 115.
Arvicola Pennsylvanicus - 124.
Georychus trimucronatus - 130.
Mus leucopus - - - 142.
Spermophilus Parryi - 158.
Aquila (Haliætus) leucocephala, F. B. A. 2. - - - 15.
Falco lanarius.
Islandicus - - 27.
sparverius - - - 31.
columbarius - - 35.
Buteo borealis - - 50.
(Circus) cyaneus - 55.
Strix otus - - - 72.
brachyota - - - 75.
cinerea - - - 77.

Strix Virginiana, F. B. A. 2.	p. 81.	
nyctea - - -	88.	
funerea - -	92.	
Tyrannula pusilla - -	144.	
Merula migratoria - -	176.	
Wilsonii - - -	182.	
Erythaca (Sialia) arctica -	209.	
Sylvicola (Vermivora) peregrina	221.	Lake Winipeg.
Setophaga ruticilla - -	223.	Lake Winipeg.
Anthus aquaticus - - -	231.	Fort Reliance.
Vireo olivaceus - -	233.	River Winipeg.
Bombycilla garrula - -	237.	Fort Reliance.
Alauda cornuta - -	245.	Fort Reliance.
Plectrophanes nivalis - -	246.	
Emberiza Canadensis - -	252.	Fort Reliance.
Fringilla leucophrys - -	255.	
Pennsylvanica - -	256.	River Winipeg.
Pyrrhula (Corythus) enucleator	262.	
Loxia leucoptera - -	263.	
Linaria minor - - -	267.	Fort Reliance.
Coccothraustes (Guiraca) Ludoviciana - - -	271.	Lake Winipeg.
Agelaius phœniceus - -	280.	Lake Winipeg.
xanthocephalus -	281.	
Quiscalus versicolor - -	285.	Lake Winipeg.
Scolecophagus ferrugineus -	286.	Fort Reliance.
Garrulus Canadensis - -	296.	
Picus pubescens - - -	307.	
varius - - -	309.	
tridactylus - -	311.	
arcticus - - -	313.	
Colaptes auratus - - -	314.	Fort Reliance.
Hirundo lunifrons - -	331.	

Caprimulgus (Chordeiles) Virginianus, F. B. A. 2. - p. 337. Lake Winipeg.
Alcedo alcyon - - - 339.
Tetrao Canadensis - - 346.
Tetrao (Lagopus) saliceti - 351.
rupestrus, SABINE 356.
(Centrocercus) phasianellus 361.
Columba (Ectopistes) migratoria 363. Lake Winipeg.
Charadrius vociferus - - 368.
pluvialis - - 369.
melodus - - River Winipeg.
Strepsilas interpres - - 371.
Grus Americana - - - 372.
Canadensis - - 373.
Recurvirostra Americana - 375.
Tringa Douglassii - - 379.
alpina - - - 384.
Totanus flavipes - - 390.
Rallus Carolinus - - 403.
Phalaropus Wilsonii - - 405.
fulicarius - - 407.
Fulica Americana - - 404.
Podiceps cornutus - - 411.
Larus argentatöides - - 417.
Lestris pomarina - - 429.
Anas clypeata - - - 439.
acuta - - - - 441.
boschas - - - 442.
crecca - - - 443.
Mareca Americana - - 445.
Oidemia perspicillata - - 448.
Fuligula marila - - - 453.
rufitorques - - 454.
rubida - - 455.

Clangula albeola, F. B. A. 2. p. 458.
vulgaris - - 456.
Anser albifrons - - - 466.
hyperboreus - - 467.
Canadensis - - 468.
Colymbus septentrionalis - 476.
Lucioperca Americana, F. B. A. 3. 10.
Salmo namaycush - - 179.
Gadus (Lota) maculosus - 248.
Coregonus albus - - - 311.
tullibee - - 309.
Hiodon chrysopsis - - 311.

These specimens were all carefully prepared by Mr. Richard King, surgeon to the expedition, who deserves the thanks of zoologists for devoting so much time and labour to the promotion of the science. As it would exceed the limits of an Appendix to give a full account, or even a cursory notice, of each species, we shall merely say a few words respecting those which are objects of chase to the Indian hunter, either for food or for the sake of their fur, adding a few brief remarks on the specimens of the other species when they serve for the elucidation of doubtful points of their history.

Say's Bat. *Vespertilio subulatus.* (Say.) F. B. A. 1. p. 3.

The specimen resembles the one described in the Fauna-Boreali Americana so much, that we cannot but consider it as the same species, though it has a shorter tail; and the comparative dimensions of some of the other members also differ a little, as the following Table shows: —

	King's Sp.	Richardson's.	Say's.
	Inch. lin.	Inch. lin.	Inch. lin.
Total length - - - -	3 $8\frac{2}{3}$	3 4	2 $1\frac{1}{6}$
Length of head and body - -	2 $4\frac{1}{2}$	1 10	—
—— head - - -	0 8	0 9	—
—— tail - - - -	1 $4\frac{1}{2}$	1 6	1 $2\frac{1}{3}$
Height of ear - - -	0 7	0 8	—
Breadth of ditto - - -	0 $4\frac{1}{2}$	0 4	—
Height of tragus - - -	0 4	0 $4\frac{1}{2}$	—
Spread of wings - - -	8 6	10 0	—
Length of thumb - - -	0 $3\frac{1}{6}$	0 $2\frac{1}{2}$	—

The discrepancies in the dimensions may be partly reconciled by supposing the body of the specimen taken on Captain Back's expedition to have been rather overstuffed; while the one got by Sir J. Franklin's party may have been allowed to shrink too much. Mr. Say's example must have been a young individual, if the identity of the species be granted. Say's bat, which is closely allied to the *V. pipistrellus* and *emarginatus* of Europe, has an extensive range, having been found on the Arkansas, at Great Slave Lake, and in the intermediate district.

American Black Bear. *Ursus Americanus.* (Pallas.) F. B. A. 1. p. 14.

This bear, which is the only one of the genus that produces a valuable fur, may be readily known by a pale yellowish-brown patch on each side of its long and slightly arched nose. It feeds chiefly on fruit and other vegetable matters; and is by no means a ferocious animal, seldom injuring man except in self-defence, and shunning the combat whenever a way of retreat is open

to it. It climbs trees or scales precipices with great facility; and, being very wary, is not easily killed in the summer. But extreme caution sometimes proves the cause of its destruction; for on hearing a noise or apprehending danger, it stands upon its hind legs every now and then to look over the bushes, and, by thus showing its position, enables the skilful hunter to make his approach. The bear is, however, much more frequently taken in its winter retreat; and being always fat when hybernating, with the fur in prime order, it is a valuable prize to the Indian, who, from long practice, acquires an extraordinary skill in discovering its den, by indications that would attract no notice from the eye of an inexperienced person. But though the native hunter never neglects an opportunity of killing a bear, he deems it an honour to be related to an animal possessing so much strength and sagacity; and before he proceeds to skin and cut up the carcass, he shows it the utmost respect, and begs a thousand pardons for the liberty he is about to take with his grandmother. The fat of the bear resembles hog's lard, and is generally considered as a delicacy by the Indians; but its strong flavour is disagreeable to Europeans.

BARREN-GROUND BEAR. *Ursus Arctos?* F. B. A. 1. p. 21.

This bear, which closely resembles the brown bear of Europe, and is probably the same species, frequents the barren lands lying to the north of the wooded country; and in the summer time haunts the shores of the Arctic sea. It feeds upon roots and berries, and also upon such animals as it can surprise, or that it finds dead — being much more carnivorous than the

preceding species. One that was killed by Sir John Franklin's party in Bathurst's Inlet had a seal, a marmot, and many roots in its stomach. This bear attains a greater size than the black bear, and is dreaded by the Indians on account of its strength and courage. It is said that it will attack man when impelled by hunger, but all that we saw fled from us as fast as they could.

GRISLY BEAR. *Ursus ferox.* (LEWIS and CLARK.) F. B. A. 1. p. 24.

This is a still more carnivorous animal than either of the preceding species, though not so completely so as the Polar bear. It is the most powerful of the genus, being able to master the American bison, which forms its habitual prey. The Indian hunter will rarely venture to attack the grisly bear, unless he is very advantageously posted; for it does not hesitate to assail a man who, intruding incautiously upon its haunts, comes upon it unexpectedly; and has been known to carry off a voyager from among his companions as they were seated at supper: yet it will usually make off when it scents the hunter from a distance, unless it be stimulated by hunger or incited by the presence of its mate or young to commence the attack. The physiognomy of the grisly bear is very like that of the brown bear (*Ursus Arctos*), but it may be readily known by the developement and curvature of its claws, which are blackish in the young animal, but change to a dirty white as it increases in age.

POLAR BEAR. *Ursus maritimus.* (LINN.) F. B. A. 1. p. 30.

The Polar bear passes the greater part of its life at sea among ice, in the pursuit of the different species of seal.

It is one of the quadrupeds which ascends into the highest latitudes, being an inhabitant of Spitzbergen, Nova Zembla, Greenland, and Parry's Islands. The gravid females hybernate under the snow; but the males and other females travel over the ice in winter in quest of open water. This fact was established beyond a doubt in 1826–7, when the Dundee whaler wintered in Baffin's Bay. This ship was beset in latitude 74° in September, and got clear in latitude 62½° in April: the pack of ice in which she was enclosed having drifted through Baffin's Bay, and obliquely across Davis' Strait, in the course of eight months. In the beginning of February, when the ship was in latitude 68° 45′ N., a whale being harpooned at the distance of sixty miles from the land, many bears, foxes, and sharks came to feed on the crang, very much to the delight of the crew, who were rejoiced to add to their scanty allowance of provisions the flesh of such bears and sharks as they succeeded in killing. *

The Wolverene. *Gulo luscus.* (Sabine.) F. B. A. 1. p. 41.

The quickèhatch, or wolverene, is another inhabitant of the high latitudes — its remains having been found in Parry's Islands, near the 75th parallel. It is a strong cunning animal, of which many marvellous stories have been told; and is greatly disliked by the martin-trappers, on account of the injury it does by carrying off their baits, and thus rendering fruitless the labour of many days.

* Voyage to Davis' Strait, by David Duncan. London, 1827.

THE ERMINE. *Mustela* (*Putorius*) *erminea.* (LINN. GMEL.) F. B. A. 1. p. 47.

This active little animal feeds on the white-footed mouse and other small gnawers, hunting, like the rest of the family, in the night, when it frequently enters the dwelling of man in pursuit of prey. The noise that it makes in galloping over the boarded floor, gives the impression of its being a much larger beast. Few of the ermine-skins of commerce come from Hudson's Bay.

THE MINK. *Mustela* (*Putorius*) *vison.* (LINN. GMEL.) F. B. A. 1. p. 48.

The *vison* or *mink* preys upon small fish, freshwater muscles, &c., and swims and dives well. La Hontan calls it an "amphibious weazel;" and it is known to the Canadian fur-hunters by the name of "foutereau." Its fur, though darker, is shorter, and consequently of less value, than that of the pine-martin. It is a smaller animal than the latter, with a proportionably shorter and broader head, and a molar tooth fewer on each side. Easily tamed, it shows much attachment to those who pet it.

THE PINE-MARTIN. *Mustela martes.* (LINN.) F. B. A. 1. p. 51.

Inhabits the wooded districts, and preys upon hares, mice, and birds. When surprised upon a tree, its gestures, the attitudes it assumes, and the puffing noise it makes, are very like those of a cat under similar circumstances. Martin fur is very fine, and brings a high

price, being sold largely in England under the name of "sable;" the real Russian sable rarely or never finding its way into our fur-shops.

The Pekan, or Fisher. *Mustela Canadensis.* (Linn.) F. B. A. 1. p. 52.

Notwithstanding the name of fisher, this animal does not seek its prey in the water; but entirely resembles the pine-martin in its habits. Its greater size, the colour and coarseness of its fur, distinguish it from the latter. The skins of the pekan are called "woodshocks" at the Hudson's Bay Company's sales.

The Skunk. *Mephitis Americana.* (Sabine.) F. B. A. 1. p. 55.

A full, bushy tail, long black hair, and a broad white stripe along each side, give the skunk a pleasing appearance; but the odour of the fluid it discharges when in danger is so disgusting that few people can summon resolution to approach it. The early French settlers in Canada evinced their abhorrence of this otherwise harmless animal, by terming it "*l'enfant du diable.*" Clothes tainted by the fluid it secretes are but imperfectly purified after they have been buried in the earth for many days. The skunk is said to hybernate under the snow. It runs slowly; and, but for its peculiar means of defence, would be easily destroyed by its numerous enemies. Dogs hunt it eagerly; but when they are just on the point of seizing it, a single discharge of its nauseous liquor puts them to flight.

THE CANADA OTTER. *Lutra Canadensis.* (SABINE.) F. B. A. 1. p. 57.

The habits of the otter are the same in the New World as in the Old; but there being a difference in the proportional length of their tails, and in some other respects, they are considered as distinct species. The fur of the Canada otter, which is much more valuable than that of its European representative, resembles that of the beaver, and is applied to the same purposes. A single skin is worth from one to two guineas. The otter is found up to the 66th or 67th parallel of latitude.

THE WOLF. *Lupus occidentalis.* (RICH.) F. B. A. 1. p. 60.

Wolves inhabit the whole country north of Canada, being, as is natural, most numerous in the districts which nourish the largest herds of the ruminating animals on which they prey. The countenance and general appearance of the American wolf differs greatly from those of its European representative, and its fur is very dissimilar; but it is a difficult question to determine whether it be a distinct species, or merely a variety produced by climate and other local causes. The Indian dog differs also in the thickness of its furry coat, as well as in its aspect, from the shepherd's dog, which is the analogous European race. Indeed, the wolves and the domestic dogs of the fur countries are so like each other, that it is not easy to distinguish them at a small distance; the want of strength and courage of the former being the principal difference. The offspring of the wolf and Indian dog are prolific, and are prized by the voyagers

as beasts of draught, being stronger than the ordinary dog.

The common colour of the American wolf is grey (*Lupus griseus*), changing to white in the higher latitudes, during the winter; but black individuals (*Lupus ater*), dusky ones (*Lupus nubilus*), and pied ones (*Lupus sticte*), are also met with occasionally. A small wolf, which differs somewhat in its habits from the common one, frequents the plains of the Saskatchewan and Missouri in great numbers; and has been described as a distinct species, under the name of the Prairie wolf (*Lupus latrans*).

The American Fox. *Vulpes fulvus.* F. B. A. 1. p. 98.

This fox differs remarkably from its European representative in its fur forming a very valuable article of trade, particularly the black variety; a single skin being worth from twenty to thirty guineas in some years. The "cross" and "silver" foxes are also much prized, though they differ from the common red or tawny variety in the colour more than in the quality of their fur. This species inhabits the wooded districts only, and hunts much on the borders of lakes for the mice, lemmings, and small birds, on which it preys.

The Kit-fox. *Vulpes cinereo-argentatus.* F. B. A. 1. p. 98.

The diminutive kit-fox, similar in its habits and appearance to the *corsac* of Asia, inhabits the prairie lands of the Saskatchewan, Missouri, and Columbia. This is the smallest of the North-American foxes. Its fur is of little value.

THE ARCTIC FOX. *Vulpes lagopus.* (DESMAREST.) F. B. A. 1. p. 83.

This playful and handsome animal inhabits the barren grounds north of the woods, being most plentiful on the islands and shores of the Arctic sea, where it brings forth its young. It wanders far in the winter in search of food; and in particular seasons travels into the wooded districts. It also goes out on the ice to a considerable distance from the land, and, according to Fabricius, shows much cunning and dexterity in catching some kinds of fish. The fur changes from grey to white in the winter; but, though very close and long, it is greatly inferior in quality to that of the *Vulpes fulvus.* Many pleasing anecdotes of this simple animal are told by Captain Lyons and other Arctic voyagers.

Coloured individuals, named "blue" or "sooty" foxes, are frequently seen even in the middle of winter.

CANADA LYNX. *Felis Canadensis.* (GEOFFROY.) F. B. A. 1. p. 101.

This animal, which is clothed with a very fine thick fur, inhabits the wooded districts, where it preys chiefly on the American hare. It is commonly termed "the cat" by the traders, and is named *Peeshoo* by the Crees. Temminck considers it as specifically the same with the lynx of the North of Europe, which he calls *Felis borealis.*

AMERICAN BEAVER. *Castor Americanus.* (F. CUVIER.) F. B. A. 1. p. 105.

The beaver's skin is the staple commodity of the fur countries, and forms the standard of value in trafficking

with the natives. The consequence is, that no animal is more persecuted; and as the admirable works it executes betray its abode, it is not surprising that it should be greatly reduced in numbers. The flesh is much prized by the natives as an article of diet, — a roasted beaver being the prime dish on their feast days. As the food of the beaver consists in a great measure of the bark of deciduous trees, particularly of the poplar, birch, and willow, its range must be restrained within the limits of the woods; but runs to a high latitude on the banks of the Mackenzie. The beaver may be considered as the civil engineer among quadrupeds; and the skill with which it selects the proper situation for its dam, so that it may be constructed with the least labour and the greatest effect for flooding a large extent of ground, and keeping up a proper supply of water during the winter, is very surprising, especially when we consider that the dam is often at a considerable distance from the beaver-house. It also shows great providence in excavating a number of vaults on the margin of the pond, for places of retreat in the event of the dwelling-house being assailed. Its habits, however, having been thoroughly studied by the Indian hunter, its skill is no match for his perseverance; and but for the care taken by the Hudson's Bay Company to preserve the various districts for four or five years in succession, the animal would soon become very scarce. Fifty thousand beaver skins are annually imported into London from North America.

THE MUSQUASH. *Fiber zibethicus.* (CUVIER.) F. B. A. 1. p. 115.

The musk-rat, musquash, watsuss, or wachusk, — for

it has all these names, — resembles the beaver in some respects, particularly in the fur; but it has a long tail, which, instead of being depressed or spread out horizontally, is compressed and tapering. The musquash is very prolific, producing three litters in a season, and breeding at a very early age. Every swamp or pond with grassy borders is inhabited by it, up to the shores of the Arctic sea; and notwithstanding the vast numbers that are annually destroyed by numerous enemies, there is no danger of its being extirpated. The import of musquash skins into Great Britain in one year amounts to nearly half a million. The fur is employed in the manufacture of hats, and though inferior in quality to the beaver fur, is very generally substituted for it by the hatmakers.

American Field-mouse. *Mus leucopus.* (Rafinesque.)
F. B. A. 1. p. 142.

This mouse, which is the representative of the *Mus sylvaticus* of Europe, is very abundant in the fur countries, taking the place of the domestic mouse, and speedily establishing itself in every new fur post that is erected. It multiplies rapidly, as there is no domestic rat to keep down its numbers; though that office is occasionally performed by the ermine, as we have already mentioned.

The American Hare. *Lepus Americanus.* (Erxleben.)
F. B. A. 1. p. 217.

This animal, which is named "wawpoos" by the Cree Indians, and "the rabbit" by the resident traders at Hudson's Bay, is very plentiful throughout the wooded country. The bark of the willow constituting its chief

winter food, it resides mostly at that season on the borders of lakes and in swamps, where that shrub and the dwarf birch grow. Being particularly abundant on the alluvial banks of the Mackenzie up to the 68th parallel, this hare furnishes the chief winter support of the Hare Indians, whose country does not nourish many of the larger quadrupeds. It is taken generally by snares set in the paths it makes through the snow. Its habits are more like those of the rabbit than like the hare of Europe, but it does not burrow, though it occasionally seeks for shelter in a hollow tree. The fur, which is brownish above in summer, changes to snow-white in winter.

THE POLAR HARE. (*Lepus glacialis* LEACH.) F. B. A. 1. p. 221.

This hare may be considered as the American representative of the *Lepus variabilis* of the Alpine and northern districts of Europe, but being on the whole a stouter animal, and exhibiting some peculiar characters, Dr. Leach was induced to describe it as a distinct species. It inhabits the barren grounds and the islands of the Arctic sea up to the 75th parallel; feeding on the small shrubs which grow in the higher latitudes, such as the arctic willow, alpine arbutus, whortleberry, and Labrador tea plant; delighting in stony places where it can find shelter; and in winter burrowing in the snow. In summer the upper fur is hoary, and in winter pure white, except the tips of the ears, which are black at all seasons.

Another varying hare frequents the prairies up to the 55th parallel; and is said to be common in the mountainous districts of the United States. This has been named *Lepus Virginianus* by Dr. Haslan.

The Moose Deer. (*Cervus alces* Linn.) F. B. A. 1. p. 232.

The moose deer feeds principally upon the smaller twigs of the willow; and is found from Hudson's Bay to the Pacific, in every part of the fur countries where that shrub grows sufficiently tall, following the Mackenzie river to the shores of the Arctic sea; but never entering the barren grounds. From the extreme wariness of the moose, the acuteness of its senses of hearing and smelling, and its speed of foot, the art of killing it is considered as the chef-d'œuvre of an Indian hunter, except in spring, when a crust has been formed on the snow, and then it may be run down without much skill. It is the largest of the American deer, and furnishes the best and most juicy meat, with the exception of the rein-deer, the flesh of which, when in season, is more delicate. A full-grown fat moose deer weighs 1000 or 1200 pounds. The skin, when dressed, forms the best leather for mocassins.

The Rein-deer. (*Cervus tarandus* Linn.) F. B. A. 1. p. 238.

The rein-deer, or caribou, as it is termed by the Canadian voyagers, is of two kinds: a larger race or variety, which exists in the wooded parts of the country, principally on the coast and near or upon the mountains; and a smaller kind, which frequents the barren grounds, retiring within the verge of the woods in the depth of the winter, but travelling to the shores and islands of the Arctic sea in the summer. The latter eats grass; but its principal food, for a considerable portion of the year, consists of the various lichens which grow

in such abundance on the barren lands. The rein-deer furnishes food and clothing to the Dog-rib and Copper Indians, the Chepewyans, the Swamp or Coast Crees, and to the Esquimaux; but none of the American tribes have domesticated it like the Laplanders. Every part of the animal is eaten, even to the contents of its stomach; and the half-dried tongue, when roasted, is perhaps the greatest delicacy that the fur countries afford. Rein-deer meat, when in the best condition, is not only superior to that of the moose deer and bison, but, in my opinion, it surpasses the best mutton or English-fed venison. When lean, however, which is the case for a considerable part of the year, it is neither nutritious nor palatable, the flesh of a poor musk-ox being, of all the ruminating quadrupeds of the country, alone, of inferior quality. The female rein-deer has horns as well as the male, though they are smaller and much less palmated, and are also shed at a different time. The skins of six or seven young rein-deer, killed in the autumn, form, when properly prepared and sewed together, a robe or blanket which is constantly used by the northern Indians in winter; being both light and warm, exceedingly well adapted to the climate, and affording a sufficient covering for a man in the coldest night.

The Wapiti. (*Cervus strongyloceros* Schreber.) F. B. A. 1. p. 250.

This animal, the wawaskeesh of the Crees, which inhabits the plains of the Saskatchewan, the neighbouring country, the banks of the Columbia, and New Caledonia, is the American representative of the red deer, and though of considerably greater size, it was long considered to be the same species. There are, at pre-

sent, some very fine wapiti in the Zoological Gardens. The flesh of this deer is considered as much inferior to that of the bison or moose deer; its hide makes excellent dressed leather.

There are several other species of deer, and an antelope, on the prairie lands of the Saskatchewan and Columbia rivers; but the three that we have specified are the only ones that interest the Indian tribes with whom Captain Back had to do. The North American deer are still very imperfectly known to naturalists, and the specific identities of the moose deer and the elk, and of the rein-deer of the new and old continents, have been by no means satisfactorily established. It is probable that further investigation will prove the barren-ground rein-deer to be a distinct species from that which inhabits the woody country.

Rocky Mountain Goat. (*Capra Americana.*) F.B.A. 1. p. 268.

This very interesting animal inhabits the higher parts of the mountains from California up to the 65th parallel. It is most remarkable for bearing a very fine wool, well adapted for the manufacture of shawls. The specimens that have been brought home have interested the wool-staplers very much; but it will be difficult to procure a sufficient quantity for the purposes of commerce.

Rocky Mountain Sheep. (*Ovis montana* Desm.) F. B. A. 1. p. 271.

This animal exceeds in size every variety of the domestic sheep, and equals any of them in the quality of its mutton. It is not clothed with wool, but with a close,

soft, brittle hair, like the reindeer. The ram carries very large horns.

Musk-ox. (*Ovibos moschatus* Blainville.) F. B. A. 1. p. 275.

This animal inhabits the barren lands, and the most northern of Parry's Islands, but retires to the verge of the woods in the depth of winter. It feeds, like the rein-deer, chiefly on lichens; and the meat of a well-fed cow is agreeably tasted and juicy; but that of a lean cow and of the bull is strongly impregnated with a disagreeable musky flavour, so as to be palatable only to a very hungry man. The musk-ox does not now exist in Greenland; and though extinct also in Siberia, bones either of the American species, or of one very similar to it, have been found there.

American Bison. (*Bos Americanus* Gmelin.) F. B. A. 1. p. 279.

This ox has lately become well known in England under the name of *bonassus*; and specimens exist in the Zoological Gardens, and in several parks. Its range in the fur countries is restricted between the 10 th meridian and the rocky mountains, and it does not go beyond the 62d parallel of latitude; but it is on the prairie lands only that the numberless herds noticed by authors are to be seen. The pemmican, which is so useful, and in fact almost essential, to the traveller through the fur countries, is made principally of the meat of the bison. The fleshy parts of the hind quarters are cut into very thin slices, dried in the sun, and pounded. Two parts of the pounded meat are then mixed with one of melted

fat, and packed into a bag formed of the hide of the animal. A bag weighing 90lbs. is called a "*taureau*" by the Canadian voyagers, and, in fact, only one bag of pemmican is generally made from each bison cow that is killed. Two pounds of this kind of food are sufficient for the daily support of a labouring man; though, when the voyagers first commence upon pemmican for the season, they will each consume three pounds or more. In the spring they generally boil the young shoots of the *Epilobium angustifolium* along with it; and the Orkneymen in the service of the Hudson's Bay Company add flour or oatmeal, thus rendering it much more palatable. The best pemmican is made of finely pounded meat, mixed with marrow, and further improved by the addition of dried berries or currants. If kept from the air, it may be preserved sound for several years; and being very portable, it might be used with great advantage in provisioning troops that have to make forced marches. It may be eaten raw, or mixed with a little water, and boiled; and, although not much relished by those who taste it for the first time, the *voyageur*, with the single addition of the luxury of tea, requires nothing else for breakfast, and dinner, or supper; the two last meals being generally conjoined on a voyage in the fur countries.

THE BALD EAGLE. (*Aquila leucocephala.*) F. B. A. 2. p. 15.

The bald or white-headed eagle resides all the year in every part of the United States; but visits the fur countries only in the summer, arriving there in the van of the migratory birds. The comparative lengths of the quill feathers vary in different individuals. Mr. Au-

dubon states, that the second quill is longest: in a specimen obtained on Sir John Franklin's expedition, it was the fourth quill; and in the one now brought home by Mr. King, it is the third that has that distinction.

PIGEON HAWK. (*Falco columbarius.*) F. B. A. 2. p. 35.

In some specimens the second, in others the third, quill exceeds the others in length: in Mr. King's, these feathers are equal to each other; and the other primaries stand, as to length, in the following order: 4th, 1st, 5th, 6th.

LONG-EARED OWL. (*Strix otus.*) F. B. A. 2. p. 72.

The specimen, though in complete plumage, is very small, measuring only $14\frac{3}{4}$ inches from the point of the beak to the tip of the tail. The latter member is as long as that of an ordinary individual, whose total length is 17 inches.

LITTLE TYRANT FLY-CATCHER. (*Tyrannula pusilla.*) F. B. A. 2. p. 144.

A bird of this species, obtained on Sir John Franklin's second expedition, at Carlton House, is figured in the Fauna Boreali-Americana (t. 46. f. 1.); and Mr. Swainson, who had obtained a specimen also from Mexico, points out in that work its differences from the *Muscicapa querula* of Wilson, or *M. acadica* of Gmelin and Bonaparte, which it very nearly resembles, the plumage of both being precisely similar. *T. pusilla* has a shorter bill, and shorter

wings than *querula*, and there is a difference in the comparative length of their quill feathers. In the latter, the first quill is equal to the fifth (or to the fourth, according to Audubon), and the second and third are longest; in *pusilla* the first is rather shorter than the sixth, and the fourth is visibly longer than the second, though the third, or longest, very little exceeds either of them. The specimen brought home by Mr. King differs from the one referred to above, solely in being about a quarter of an inch longer from the point of the bill to the end of the tail; but the proportions of the other parts are the same.

THE ARCTIC BLUE-BIRD. (*Sialia arctica.*) F. B. A. 2. p. 209. t. 39.

A single bird of this species was killed by Mr. Dease at Great Bear Lake, on Sir John Franklin's second expedition. Since then, the same gentleman has sent me four specimens from New Caledonia, where it is pretty common, and is known to the natives by the name of "Thlee-ooday." Mr. King's specimen proves that it goes as far east, on the shores of Great Slave Lake, as the 105th meridian. All the individuals that I have seen agree exactly in the colours of their plumage, as well as in other respects, with the one figured in the Fauna Boreali-Americana. In one specimen only, the first quill feather almost equals the second, but in none does it exceed it, as is the case with *Sialia Wilsonii*.

TENESSEE WORM-EATER. (*Vermivora peregrina.*) F. B. A. 2. p. 221. t. 42. f. 2.

Mr. Audubon says that this species is very rare in the

United States; but it would appear to be more common in the fur countries, having been found by Sir John Franklin's party, as well as by Captain Back's, in both instances in the 53d parallel of latitude.

YELLOW-TAILED GNAT-CATCHER. (*Setophaga ruticilla.*) F. B. A. 2. p. 223.

This singularly-coloured and lively little bird is very common in the Brazils, and in the islands of the Caribbean Sea. It arrives within the limits of the United States early in March; and in May reaches the Saskatchewan, where it may be seen sporting about among the lower branches of the large willows that grow in that swampy district.

REDDISH-BROWN TITLARK. (*Anthus aquaticus.*) F. B. A. 2. p. 231. t. 44.

Mr. Audubon informs us, that this titlark is met with in every part of the United States; but does not breed there. It was seen on Sir John Franklin's second expedition on the Saskatchewan, and Mr. King obtained two specimens at Fort Reliance on the 3d of June. It probably breeds in the latter quarter, or still farther north.

TREE BUNTLING. (*Emberiza canadensis.*) F. B. A. 2. p. 252.

Three specimens of this buntling were obtained by Mr. King at Fort Reliance, which is farther north than it was previously known to range; but it most probably goes to the limit of the woods. Its winter quarters

are, according to Mr. Audubon, in the United States, north of the Ohio.

ROSE-BREASTED GROSBEAK. (*Coccothraustes Ludoviciana.*) F. B. A. 2. p. 271.

Mr. King obtained a specimen of this charming bird on Lake Winipeg, and has made a note of its irides being red. Audubon and Wilson state them to be hazel.

THE SPOTTED GROUSE. (*Tetrao canadensis.*) F. B. A. 2. p. 347. t. 62.

This bird ranges from the northern districts of the United States to the extremities of the woods on the banks of the Mackenzie (lat. 68°); and from the facility with which it can be killed at certain seasons when game is scarce, is of great service to the Indian hunter. It inhabits thick forests, and particularly swampy places where the black spruce grows, and on this account is called by the Canadian voyagers *perdrix de savanne.* The leaves of the spruce form its food, which gives its dark-coloured flesh a strong resinous taste. Franklin's grouse, an inhabitant of the acclivities of the Rocky Mountains, and the country to the westward of that ridge, differs from the spotted grouse in the twelve upper tail coverts being broadly tipped with white, and, according to Mr. Douglas, their eggs are also dissimilar.

THE WILLOW GROUSE. (*Lagopus saliceti.*) F. B. A. 2. p. 351.

This ptarmigan is of still more importance to the

Indian population of the fur countries than the preceding grouse, on account of its vast numbers sufficing for the support of many of the tribes for a considerable part of the year. It inhabits the barren grounds and the summits of the rocky hills in the woody country, during the summer season, seeking shelter in the woods in winter; and it is in the latter part of the year that it is most plentifully taken. Ten thousand have been caught by nets or snares in one winter at a single fur post.

THE ROCK PTARMIGAN. (*Lagopus rupestris.*) F. B. A. 2. p. 354. t. 64.

This species is more peculiarly an inhabitant of the barren lands than the last, never coming into the woods except in the winter, and even then only for a short way. It is very abundant in some districts. Another species, named by Dr. Leach *lagopus mutus*, visits, according to Captain James Ross, the peninsula of Boothia, along with this and the willow grouse, but the rock ptarmigan is the most abundant in the islands of the Arctic sea. There is a smaller ptarmigan than any of these, peculiar to the Rocky Mountains, which may be known by the whole of its tail feathers being white, whence it has received the specific appellation of *lagopus leucurus.*

SHARP-TAILED GROUSE. (*Centrocercus phasianellus.*) F. B. A. 2. p. 361.

This bird is abundant in the fur countries up to the 61st parallel, both in the prairies and among the woods. Its flesh, though superior to that of any of the preceding ptarmigan or grouse, is not so tender or white as that of

the ruffed grouse, which is also plentiful as high as the 56th parallel. Other birds of this genus inhabit the plains of the Columbia, but those we have mentioned are the most serviceable to the Indian tribes that inhabit the districts through which Captain Back passed.

PASSENGER PIGEON. (*Columba migratoria.*) F. B. A. 2. p. 363.

This pigeon, which breeds in almost incredible numbers in some parts of the United States, visits the fur countries up to the 62nd parallel of latitude, but not in such quantities anywhere to the northward of Lake Winipeg, as to contribute much to the support of the natives: at the south end of that lake, indeed, for a month or two in summer, when the floods have overflowed the low lands, and no four-footed game is to be procured, a few families of Indians subsist upon this bird. It visits the north after the termination of the breeding season in the United States. Captain James Ross saw a single pigeon of this species as high as latitude 73½° in Baffin's Bay: it flew on board the Victory during a storm, and must have strayed from a great distance. The wind, as we find by a reference to Sir John Ross's narrative, blew from the north-east at the beginning of the gale, shifting afterwards to the eastward. As the Victory was to the northward of the island of Disco at the time, if the bird came in either of these directions, it must have taken flight from the northern part of Greenland, but it is not likely to have found food on that barren coast.

THE PIPING PLOVER. (*Charadrius melodus* BONAP.)

A specimen of this pretty plover was obtained by Mr. King on Lake Winipeg, and that piece of water is

probably its northern limit, as it was not observed on the former expeditions through the higher latitudes. It is consequently a more southern bird than the *Charadrius semipalmatus*, which was seen in abundance by Sir John Franklin's party during the whole route, and by Captain James Ross in the peninsula of Boothia, where it passes the summer in the marshes. The piping plover was described at first by Wilson as a variety of the common ringed plover, but in afterwards figuring the semipalmated plover under the same name, he intimated his suspicion of its being a distinct species. Subsequent authors have pointed out its peculiar characters, and the two species, together with a third named *Charadrius Wilsonii*, and very nearly resembling them, are well described and figured in Mr. Audubon's splendid work. The piping plover breeds as far to the southward as the Keys of Florida, and though it exhibits every where nearly the same plumage, we shall here subjoin a description of Mr. King's specimen, as it is the only one that has been brought from the fur countries.

Colour. — Bill, black towards the point, orange at its tip. Upper plumage, light brownish-grey; that is, of a pale tint, intermediate between the yellowish-grey and light broccoli-brown of Werner. Forehead, cheeks, throat, the whole under-plumage and sides of the rump, white; the white being continued round the neck, so as to form a narrow ring behind the nape. A narrow black band extends between the anterior angles of the orbits, behind the white of the forehead; and there is a black patch on each shoulder, with a narrow connecting line crossing the breast; but in this specimen, the black does not cross the neck above, as it occasionally does, on the tips of a single row of feathers, having probably been worn off. The quills, greater coverts, and middle tail feathers, are blackish-brown; but the middle of the shafts and part of the inner webs of the former are white; that colour spreading on the fourth and succeeding primaries to their outer webs; the

tips of the wing coverts also exhibit various degrees of white. Tertiaries mostly like the back; but their tips are darker, and their extreme edges soiled white. Outer tail feathers entirely white; the next pair white at both extremities, the others showing successively less white, and the central ones, as has been mentioned, entirely brown.

Form. — Outer web of the feet notched, including only the first joint of the outer toe; and merely two thirds of the corresponding phalanx of the middle toe. Inner web scarcely perceptible.

	Inch.	lin.		Inch.	lin.
Length from tip of bill to end of tail	6	7	Length of middle toe and nail	0	$8\frac{1}{2}$
Length of tail	2	3	Length of bill above	0	6
——— folded wing	4	$8\frac{1}{2}$	——— bill to rictus	0	$7\frac{1}{4}$
——— tarsus	0	$10\frac{1}{2}$			

The Mallard. (*Anas boschas* Auct.) F. B. A. 2. p. 442.

This duck is stated by Mr. Audubon to be rare on the Atlantic coast of the United States, but to be more numerous in the interior, and to breed as far south as Kentucky and Indiana. It is very generally diffused through the fur countries up to the northern extremity of the woods, and is the weightiest and best duck that resorts thither. Of the true ducks (the *anatinæ* of Swainson), the shoveller passes through the fur countries in about equal numbers with the mallard, but breeds farther north, on the barren grounds. The gadwall and widgeon breed in all parts of the woody country, though in smaller numbers than the preceding ones; while the green-winged teal, on the other hand, is much more numerous, and breeds on the banks of every river and lake, both in the woody and barren districts. The blue-winged teal is also numerous, to the southward of the Athabasca country; and the summer-duck is rare on the Saskatchewan, and does not travel farther north. These ducks arrive from the south as soon as the snow melts, and

before the ice of the small lakes is broken up. The *fuligulinæ*, or sea ducks, are also very numerous in the fur countries, either on their passage farther north, or as halting to breed there. The eider and king ducks are plentiful on the coast and islands of the Arctic sea; and also on the coast of Hudson's Bay to the north of Churchill; but are never seen in the fresh waters of the interior. In their migrations, it would appear that they keep near the open sea, passing along the eastern coast of Labrador. The American scoter (*oidemia Americana*) is also an inhabitant of the sea-coast only, breeding near Churchill. The surf and velvet ducks travel through the interior to the arctic coasts and islands, where they breed: they are very abundant, but not much valued as articles of food, except when better provisions are scarce. The noisy long-tailed duck assembles in still larger flocks than these, and breeds in the same places. It is this bird which the Canadian voyagers celebrate in their songs, under the name of "caccawee." The canvas-back, pochard, scaup, and ring-necked ducks, breed every where to the northward of the 50th parallel of latitude up to the extremity of the continent; but do not appear often on the sea-coast. They associate much with the *anatinæ*, seeking their food in the same lakes and ponds, but taking it more generally from the bottom in deeper places, and consequently diving more. The Rocky-mountain garrot, golden eye, and spirit ducks, are still better divers than the preceding, and the two last are very numerous. Their flesh is tough. The harlequin duck is rare, and the very curious ruddy duck, though plentiful on the plains of the Saskatchewan, does not go much farther northwards. This bird has a tail very similar in structure to

that of a cormorant, which it carries erect in swimming, so that at a little distance the body seems to have a head stuck up at each end. The ruddy duck is said to arrive in the fur countries always in the night time, and to be rarely seen on the wing: indeed, its short pinions do not appear to be well adapted for sustained flight.

The mergansers are not rare in the northern parts of America; but they are of comparatively little importance, in an economical point of view.

Trumpeter Swan. (*Cygnus buccinator.*) F. B. A. 2. p. 464.

This swan, the first of the water-fowl that revisits the fur countries in the spring, is hailed with delight by the Indians as the harbinger of plenty, for the geese and ducks shortly follow, and abundance reigns in the encampments of the natives for a few weeks. The trumpeter swan, even on its first arrival, is generally seen in pairs, seldom in flocks, and it frequents eddies under water-falls, and other pieces of open water, until the general breaking up of the ice on the rivers and lakes. Being difficult of approach, it is most frequently killed at a long shot by a single ball. As the down of the swan is of considerable value, the bird is skinned by the hunter, but the carcase even after undergoing that operation is very good to eat, being nearly equal to that of a goose. The breeding places of the trumpeter swan are beyond the 60th parallel, but it is not so northern a bird as the following species.

Bewick's Swan. (*Cygnus Bewickii.*) F. B. A. 2. p. 465.

This is a smaller bird than the trumpeter, and is common to Europe and America. It is plentiful on the

coast of Hudson's Bay, and breeds on the peninsulas of Melville and Boothia, and in the islands of the Arctic Sea. It arrives among the latest of the water-fowl in the fur countries in spring, and stays long in the autumn. The last swans of the season passed over Fort Franklin, lat. 64½°N., on the 5th of October.

CANADA GOOSE. (*Anser Canadensis.*) F. B. A. 2. p. 468.

The Canada goose, named "outarde" by the early French travellers in the fur countries, and also by the Canadian voyageurs of the present day, breeds sparingly in the interior of the United States as low as the Ohio, and in the state of Maine near the Atlantic coast. It winters, Mr. Audubon tells us, in vast flocks in the savannas of Florida and the Arkansas, and commences its northward migration from the middle and western districts with the first melting of the snows, that is, between the 20th of March and the end of April. Major Long informs us that the great migration of geese commences at Engineer Cantonment on the Missouri (lat. 41½°.) on the 22nd of February, and terminates in the latter end of March. The Canada goose breeds in every part of the fur countries, but has not been seen on the shores of the Arctic Sea. It arrives in flocks when the snow melts, and soon afterwards spreads over the country in pairs. The following table of the ordinary dates of its arrival at particular places gives a correct idea of the commencement of spring in the different parallels.

Penetanguishene, Lake Huron,	Lat. $44\frac{3}{4}°$ N.	March	24.	April	2.
Cumberland House, Saskat -	— $54°$ N.	April	8.	to	12.
Fort Chepewyan - -	— $58\frac{3}{4}°$ N.	—	20.	—	25.
— Resolution, Slave Lake -	— $61\frac{1}{6}°$ N.	May	1.	—	6.
— Enterprise - -	— $64\frac{1}{2}°$ N.	—	12.	—	20.
— Franklin, Great Bear Lake	— $64\frac{1}{2}°$ N.	—	7.	—	20.

In the month of July the old birds moult, and may be seen in every river, followed by their young brood, not fully feathered and incapable of flying. When pursued they dive repeatedly, but are soon fatigued, and make for the shore; though, unless they reach a swamp where they can hide themselves among the long grass, they fall an easy prey to the hunter, who knocks them on the head with a stick. A canoe is soon loaded at this sport; and I have, on several occasions, procured a supper in this way for a large party in a few minutes. As soon as the ground begins to harden with the autumnal frosts, and one or two falls of snow have taken place, the Canada goose again assembles in large flocks, and wings its way to the southward. In their flights the geese generally take advantage of a favourable gale; and when their cry is heard in the night high in the air, as they hasten before the wind to warmer latitudes, cold weather is sure to follow. There are certain spots or passes which the geese always visit on their migrations; but they do not frequent the same places in equal numbers in the spring and fall. In the former season they make considerable halts on lakes of the interior, which they pass over on their return, showing a preference in the autumn to the swampy shores of Hudson's Bay, where they linger after the inland waters are covered with ice.

The first appearance of the Canada goose in the spring at a fur post infuses life into the whole establishment. Every gun is put in order; and as soon as the wedge-

formed flock is seen from afar, man, woman, and child rush out, shouting "wook, wook, wook," at the pitch of their voices. The silly birds respond to the call; and, wheeling round the place, generally lose one or two of their number. More are culled from each flock by the skilful Indian hunter, who, concealed from their view among the long grass or thick brush-wood, is able to call the geese to him from a great distance. The first birds he procures are set up on the beach as stales to entice others to alight; and the ordinary rate of his success may be judged by the price which a goose bears; namely, a single charge of ammunition, the chance of killing several at a shot more than compensating for failures. The geese fly high when over the land, but descend on approaching the water, and cross the larger lakes mostly at particular places. It is singular to see how flock after flock passes between the same islands, or through the same gap in the woods, each following as nearly as possible the track of its predecessor. At some of the posts great quantities of geese are salted for winter use; but this method of preserving them is a very bad one, a salted goose being both dry and tough.

LAUGHING GOOSE. (*Anser albifrons.*) F. B. A. 2. p. 466.

This is a smaller goose than the preceding; and, in the comparative length of the neck and form of the bill, it more nearly resembles our domestic goose, or its wild original. The laughing goose travels in great flocks through the fur countries, eight or ten days later than the first appearance of the Canada goose, and breeds on the coasts and islands of the Arctic Sea, north of the

67th parallel of latitude. Its call is much like the prolonged laugh of a man. Captain James Ross did not see this goose on the peninsula of Boothia, and it does not appear to be common on the coast of Hudson's Bay. The autumn migration southwards of the laughing goose commences early in September; and its return at that season to the fur districts is often the first indication of winter having begun within the arctic circle. It passes on towards the United States, in advance of the Canada goose; and Mr. Audubon says that it arrives before the latter in Kentucky, where many of the species winter; but many also, he is convinced, go entirely to the southward of the United States' boundary. The same gentleman informs us that this species leaves its winter quarters a fortnight sooner than the Canada goose, which is different from the order of their appearance on the banks of the Saskatchewan. Its flesh is superior to that of the Canada goose.

Snow Goose. (*Anser hyperboreus.*) F. B. A. 2. p. 467.

This beautiful goose has exactly the gait and form of the preceding; and is very little larger, when full grown. The two species, according to Audubon, quit their winter quarters, in the United States, at the same time; but the snow goose generally makes its first appearance in the fur countries a few days later than the laughing goose, though the main flocks of both pass at the same time. The snow goose breeds in vast numbers on the borders of the small lakes near the coasts of the Arctic Sea, on the islands of the same, and also on Melville Peninsula. In its journey northwards,

it reaches the 54th parallel on the 15th of April; the 57th, on the 25th of the same month; the 64th parallel, on the 20th of May; and its breeding stations, in the 69th, by the beginning of June, when the snow is only melted from some elevated spots. The snow goose when fat is a very excellent bird, vieing with the laughing goose in its qualities as an article of diet.

HUTCHINS' GOOSE. (*Anser Hutchinsii.*) F. B. A. 2. p. 470.

This bird, in the colours of its plumage, strongly resembles the Canada goose, and is often considered as merely a small variety of that species. In its form, however, it is more like the barnacle or brent, with which it will be evidently associated in an ornithological system. Mr. Audubon, who has given the only figure that has been published of this species, thinks that it is known in the state of Maine under the name of winter or flight goose. It migrates along the coast of Hudson's Bay, and breeds in the peninsulas of Melville and Boothia, laying three or four eggs of a pure white colour; and Captain James Ross informs us that its flesh has a most exquisite flavour. It arrived at Boothia about the middle of June.

BRENT GOOSE. (*Anser bernicla.*) F. B. A. 2. p. 469.

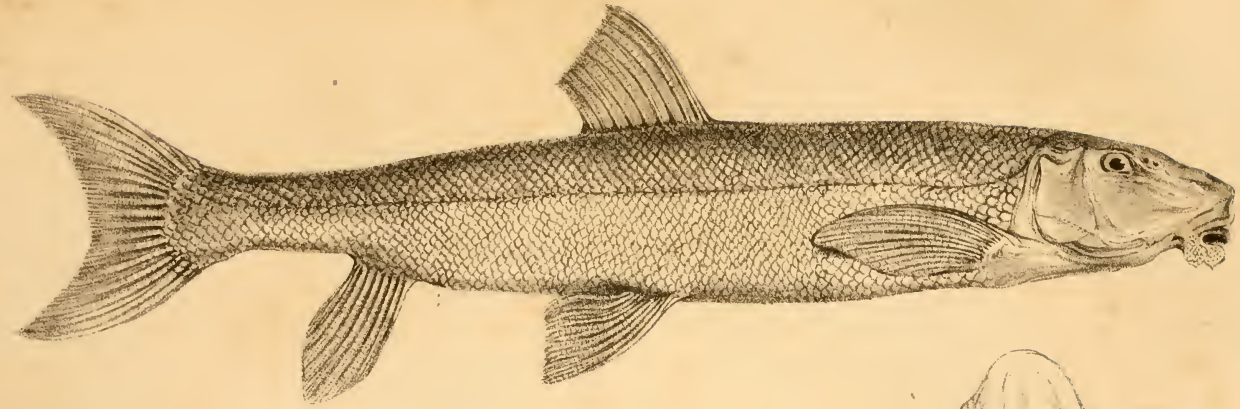
This neat small goose is very numerous on the coast of Hudson's Bay, in its passage to and from the north. Captain James Ross states that it did not remain near Felix Harbour (Boothia) to breed, but went still farther north; and that it is found during the summer

months in the highest northern latitudes that have been visited. It was found breeding on Parry's Islands, in latitudes 74°—75°.

FISH.

Every part of the fur countries, with the exception of the prairie lands of the Red, Saskatchewan, and Columbia rivers, is intersected in every direction by lakes and their connecting streams, all of them abounding in fish. In those districts in particular where the primitive strata prevail, the rivers are merely chains of many-armed lakes, linked together by narrow rapids or cascades. As it is in these parts of the country, at least as far north as the woods extend, where the furs are chiefly obtained, most of the forts or trading posts are established within their limits; but if it were not for the abundance of fish, it would be very difficult to obtain due supplies of provision, since the larger quadrupeds are not so plentiful in the woods as to furnish a certain subsistence to a numerous party for the whole year. Meat posts, as they are termed, can be formed only in the prairies, where the bison and deer abound, or at certain localities near the northern range of the woods, where the reindeer pass in large herds in spring and autumn. In some quarters, as we have mentioned, large quantities of geese can be procured for a few weeks, and in others vast numbers of grouse are snared; but, in general, no post can be considered as safe for a winter residence unless there be a good fishing station in its vicinity.

Ample details of the various methods of fishing in use in the fur countries have been given by Hearne and succeeding travellers; and also in the third volume



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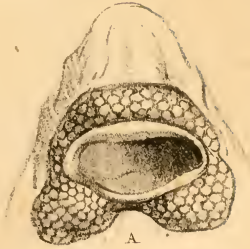
B



A

RED SUCKING CARP.

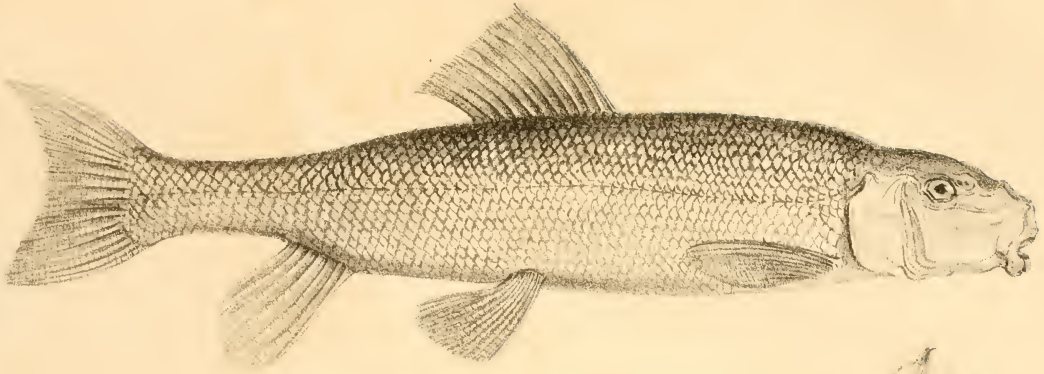
(1/3 Nat. Size.)

A & B Nat Size. C Scale Magnified.

W. Waterhouse Hawkins del.

J. Murray, Albemarle Street, 1836.

Printed by Day & Haghe.



C

B

A

C

B

A

THE [illegible]

(⅓ Nat. Size.)

A, B Nat. Size. C Scale

J. Murray, Edinburgh, Sc.

B. Waterhouse Hawkins, Del.

of the Fauna Boreali-Americana; so that we need not enlarge on that subject, but merely mention that at all fishing places, the principal supply for winter use is obtained in the autumn, immediately before or soon after the lakes freeze over. As the fish are taken from the net, a rod is passed through their gills, by which they are suspended to lofty stages, where they are out of the reach of dogs and beasts of prey. Those that are hung up before the frost has set permanently in acquire a putrid taint, but are thought to be rather improved in quality; the others that are caught later are preserved sound by the frost all the winter.

The Attihawmeg. (*Coregonus albus.*) F. B. A. 3. p. 195. t. 89. f. 2. A. & B.; and t. 94. a. b. c.

This celebrated fish is found in every piece of fresh water between Lake Erie and the Arctic Sea; and it may be said that it is through the abundant supply of food which its fisheries yield, that the fur trade is carried on. The attihawmeg, or *poisson blanc* of the voyageurs, grows to the greatest size in the larger and deeper lakes, attaining 10lbs. weight and upwards in Huron, Superior, or Great Bear Lakes; but those generally taken throughout the fur countries average about three or four pounds. When in season, it is a rich, agreeable, and very wholesome fish, that never palls the appetite; and is preferable, even when lean, for a daily article of diet, to any other fish of the country. Though of the salmon family, the European fish that resembles it most, when cooked, is, perhaps, a fat Loch Fyne herring, fresh from the water. The most usual method of cooking it in the fur countries is by boiling, so as to form an excellent white soup; but it is

extremely good when fried, and especially if enveloped in batter.

The other fish that are caught in the several districts of the fur countries, in sufficient numbers to be of importance in an economical point of view, are, trouts of various kinds, of which the principal is the *salmo namaycush*; pike (*esox lucius*); several sucking carp (*catastomi*); and the methy (*lota maculosa*). All the trouts are excellent, particularly the large one we have just named. They answer, however, better as occasional articles of diet than for daily use; and it is only in some months of the year, and particularly on the approach of spring, that they are caught plentifully. The pike is of more importance to the inhabitants of the fur countries, from the readiness with which it takes a bait at all seasons of the year, than from its excellence as an article of diet, for, in that respect, it is inferior to all the trout tribe. It is remarkable that the pike does not exist in the waters to the westward of the Rocky Mountains, though the species which is found in the country to the eastward of that ridge is the same that inhabits the rivers and lakes of Europe, and North Asia, and even the Caspian Sea.

The sucking carp are not much prized for food; but they are very numerous, and are all well adapted for making soup. We have selected three different species for representation, partly because they have never been figured before, and partly because the species being numerous and difficult to distinguish by mere description, the figures cannot fail to be useful to naturalists.

The methy (*lota maculosa*), though not so numerous as the *coregoni*, trouts, or sucking carps, is yet universally diffused through the fur countries; but its flesh

is so disagreeable that it is never eaten except in times of scarcity. Its roe, however, which is composed of very small ova, makes good bread when beaten up with a little flour; and even when cooked alone, it forms cakes that are very palatable as tea bread, though rather difficult of digestion.

There are other fish not so generally distributed, but which are of importance in particular districts. Thus, the fishery at Cumberland House, on the Saskatchewan, yields, in addition to those we have mentioned, the American sandre (*lucioperca Americana*); the mathemeg (*pimelodus borealis*); the tullibee, a species of coregonus; the naccaysh (*hiodon chrysopsis*, F. B. A. p. 232. 311. pl. 94. f. 3. A. B. C.); and the sturgeon (*acipenser Rupertianus*).

None of the fish named in the last paragraph go so far north as Great Slave Lake; but we find there the *salmo Mackenzii*, which ascends from the Arctic Sea, and does not exist in the more southern waters. This fish, though agreeing with the trouts in the structure of the jaws, differs from all the subgenera established by Cuvier in the *Règne Animal*, in having the teeth disposed in velvet-like bands, which are narrow on the tips of the jaws, and broader on the vomer and palate bones. From the crowded minute teeth, the name of STENODUS may be given to the subgenus, of which the inconnu or *salmo Mackenzii* is the only ascertained species. Back's grayling (*thymallus signifer*), and the round-fish (*coregonus quadrilateralis*), abound in the clear rivers which fall into the north and east side of Slave Lake, and in the waters in higher latitudes. They exist, but not numerously, in Great Bear Lake also; but the most abundant fish in that vast piece of water is the Bear Lake herring-salmon (*corregonus lucidus*). The in-

connu does not ascend Bear Lake River, giving the preference to muddy streams.

Salmon of various species spawn in the rivers that fall into the Arctic Sea, and were taken in great quantities by Sir John Ross in the Gulf of Boothia. It is therefore probable that some kinds enter the Thlew-ee-choh, though no specimens were brought home.

Notice of the Plates of Fish.

The lattice-scaled sucking carp (*Catastomus reticulatus*, F.B.A. 3. p. 303.), is common to the southward of Lake Winipeg, and in the Albany River district.

The red sucking carp (*Catastomus Forsterianus*, F.B.A. 3. p. 116.).

The picconou (*Catastomus Sueurii*, F.B.A. 3. p. 118.)

No. II.

LIST OF PLANTS

COLLECTED BY MR. RICHARD KING, DURING THE PROGRESS OF THE EXPEDITION.

Named by W. J. HOOKER, LL.D. F.R.S. &c. &c., Professor of Botany, Glasgow.

RANUNCULACEÆ.

Anemone patens	Fort Reliance.
nemorosa (*unusually hairy*)	Lake of the Woods.
multifida (*Poiret*)	Lake Winipeg.
Pennsylvanica (*L.*)	Ditto, and Slave Lake.
Hepatica triloba β (*Hook*)	River Winipeg.
Ranunculus aquatilis	Saskatchewan River.
cymbalaria	Lake Winipeg.
affinis	Slave Lake.
Pennsylvanicus	Athabasca.
auricomus	Thlew-ee-choh and Athabasca.
sceleratus	Rainy Lake. Slave Lake.
Caltha palustris	Lake Winipeg.
Aquilegia Canadensis	Ditto.
β hybrida (*Hook*)	Slave Lake.
Actæa rubra	Lake Winipeg.

PAPAVERACEÆ.

Papaver medicaule	Thlew-ee-choh.

FUMARIACEÆ.

Corydalis aurea	- River Winipeg.
glauca	- Ditto.

CRUCIFERÆ.

Cardamine hirsuta	- River Winipeg, and Cumberland House.
Nasturtium palustre	- Ditto.
Arabis petræa	- Ditto.
Turritis stricta	- Ditto.
Draba lævipes	- River Winipeg.
hirta	- Thlew-ee-choh.
Sisymbrium sophioides	- Lake Winipeg.
Eutrema Edwardsii	- Thlew-ee-choh.

VIOLAREÆ.

Viola blanda	- Fort William.
pubescens	- Dog River.
Canadensis	- Ditto. River Winipeg.
Muhlenbergiana	- Slave Lake.

DROSERACEÆ.

Parnassia palustris	- Saskatchewan to Slave Lake.

POLYGALEÆ.

Polygala Seneka	- River Winipeg.

CARYOPHYLLEÆ.

Silene acaulis	- Thlew-ee-choh.
Lychnis apetala	- Gulf of Boothia.
Spergula nodosa	- Saskatchewan.
Larbræa uliginosa	- Missinippi River.

Stellaria borealis (*Bigelow*)
stricta (*Rich.*) - River Winipeg.
læta - - Thlew-ee-choh.
Arenaria lateriflora - Lake Superior.
peploides - Gulf of Boothia.
Cerastium viscosum - River Winipeg.
alpinum - Thlew-ee-choh.
arvense - - River Winipeg,

GERANIACEÆ.

Geranium Carolinianum - Saskatchewan.

LEGUMINOSÆ.

Phaca astragalina - - Thlew-ee-choh. Slave Lake.
Oxytropis uralensis β - Ditto.
Astragalus hypoglottis - River Winipeg.
Vicia Americana - - Lake Winipeg. Saskatchewan.
Lathyrus ochroleucus - Ditto. Slave Lake.

ROSACEÆ.

Dryas integrifolia - Thlew-ee-choh.
Sieversia triflora - - Slave River.
Fragaria Virginiana - Ditto.
Potentilla arguta - Saskatchewan River.
anserina - Slave River.
hirsuta. - Saskatchewan River.
Vahliana - Thlew-ee-choh River.
nivea - - Ditto.
tridentata - Missinippi River.
Amelanchier sanguinea - Slave River.

ONAGRARIÆ.

Epilobium angustifolium - Saskatchewan River.

Epilobium latifolium	- Thlew-ee-choh River.
origanifolium	- Saskatchewan.
alpinum? near the preceding	- York Factory.
Œnothera biennis?	- Athabasca.

SAXIFRAGEÆ.

Heuchera Richardsonii	- Saskatchewan.
Saxifraga oppositifolia	- Gulf of Boothia.
cernua -	- Thlew-ee-choh.
nivalis -	- Ditto.
Virginiensis	- River Winipeg.
vernalis	- Ditto.
hirculus	- Thlew-ee-choh.
tricuspidata	- Slave and Winipeg Lakes. Thlew-ee-choh.

UMBELLIFERÆ.

Zizia cordata -	- Lake Winipeg.

ARALIACEÆ.

Panax quinquefolium	- Saskatchewan.

CORNEÆ.

Cornus Canadensis	- Winipeg and Slave Lakes.

CAPRIFOLIACEÆ.

Sambucus racemosa	- Lake Winipeg.
Viburnum acerifolium	- Slave River, and Athabasca.
Lonicera parviflora	- Lake Winipeg.
ciliata -	- Fort William.
cærulea	- Ditto.
Linnæa borealis -	- Missinippi River.

RUBIACEÆ.

Galium boreale	Saskatchewan and Missinippi.
Claytoni	Saskatchewan.

COMPOSITÆ.

Leontodon palustre	Thlew-ee-choh.
Bidens cernua	Saskatchewan.
Achillea millefolium	Ditto, and Missinippi.
Pyrethrum inodorum β	Gulf of Boothia.
Artemisia frigida	Athabasca.
biennis	Ditto.
borealis	Thlew-ee-choh, and Gulf of Boothia.
Arnica montana	Thlew-ee-choh.
Senecio aureus	Saskatchewan. Athabasca.
palustris	Missinippi.
β congesta	Gulf of Boothia.
Erigeron pulchellus	Lake Winipeg.
purpureus	Saskatchewan.
Solidago virgaurea	Ditto.
Aster paniculatus?	York Factory.
Antennaria plantaginea	Fort William. Slave Lake.

CAMPANULACEÆ.

Campanula linifolia	Saskatchewan.

ERICINEÆ.

Ledum palustre	Thlew-ee-choh.
Arbutus alpina	Ditto.
uva ursi	Lake Winipeg.
Andromeda tetragona	Thlew-ee-choh.
polifolia	Lake Winipeg.
calyculata	Lake Superior.

Rhododendron Lapponicum		Thlew-ee-choh.
Azalea procumbens	-	Ditto.

VACCINEÆ.

Vaccinium Pennsylvanicum		River Winipeg.
uliginosum	-	Thlew-ee-choh.
vitis idæa	-	Saskatchewan.
Gaultheria procumbens	-	Lake Superior.

PYROLACEÆ.

Chimaphila umbellata	-	Canada.
Pyrola rotundifolia	-	Athabasca.
var. γ	-	Saskatchewan.
δ	-	Thlew-ee-choh.

GENTIANEÆ.

Gentiana amarella	-	York Factory.

APOCYNEÆ.

Apocynum rosmarinifolium	Saskatchewan.

BORAGINEÆ.

Bastchia canescens	-	Lake Winipeg.
Collomia linearis	-	Saskatchewan.
Lithospermum paniculatum		Lake Winipeg.

HYDROPHYLLEÆ.

Eutoca Franklinii	-	Saskatchewan.

SCROPHULARINEÆ.

Pedicularis hirsuta	-	Thlew-ee-choh.
Veronica peregrina	-	Saskatchewan.
Collinsia parviflora	-	Lake Winipeg.

RHINANTHACEÆ.

Euphrasia officinalis - Saskatchewan.
Melampyrum lineare - Ditto.
Castelleja septentrionalis - Winipeg and Slave Lakes.

PRIMULACEÆ.

Menyanthes trifoliata - Lake Winipeg.
Primula pusilla - Lake Superior.
Trientalis Americana - Saskatchewan.
Lysimachia thyrsiflora - Ditto.

PLUMBAGINEÆ.

Statice Armeria - - Thlew-ee-choh, and Gulf of Boothia.

POLYGONEÆ.

Polygonum aviculare - Athabasca.
hydropiper - Saskatchewan.
h. var. eglandulosum Ditto.
Persicaria - Athabasca.
Oxyria reniformis - Thlew-ee-choh.

CHENOPODEÆ.

Blitum capitatum - Lake Winipeg, and Athabasca.
Chenopodium glaucum - Athabasca.
album - Saskatchewan.
Atriplex littoralis - Athabasca.
Lophanthus anisatus - Saskatchewan.

LABIATÆ.

Stachys palustris - Saskatchewan.
Dracocephalum parviflorum Lake Winipeg.

THYMELEÆ.

Comandra umbellata	- Saskatchewan.	

EMPETREÆ.

Empetrum nigrum	- Thlew-ee-choh.	

HYDROLACEÆ.

Diapensia Lapponica	- Thlew-ee-choh.	

AMENTACEÆ.

Salix arctica -	- Thlew-ee-choh.	Gulf of Boothia.
cordifolia? -	- Thlew-ee-choh.	
reticulata -	- Gulf of Boothia.	
herbacea -	- Thlew-ee-choh.	
Betula glandulosa	- Ditto.	
Alnus glutinosa -	- Saskatchewan.	
Populus trepida -	- Ditto.	

URTICEÆ.

Urtica gracilis -	- Lake Winipeg.	

CONIFERÆ.

Juniperus prostrata	- Lake Winipeg.	

IRIDEÆ.

Sisyrinchium anceps	- Lake Winipeg.	

ORCHIDEÆ.

Habenaria rotundifolia	- Saskatchewan.	
bracteata	- Lake Winipeg.	
Neottia cernua -	- Athabasca.	
Cypripedium parviflorum	- Lake Winipeg.	
Calypso borealis -	- Fort William.	

MELANTHACEÆ.

Tofieldia palustris - Lake Winipeg.

ASPHODELEÆ.

Allium schænoprasum - Saskatchewan.

SMILACEÆ.

Smilacina stellata - Lake Winipeg.
Canadensis - Ditto.

LILIACEÆ.

Lilium philadelphicum - Saskatchewan. Portage la Loche.
Erythronium lanceolatum - Lake Superior.

GRAMINEÆ.

Alopecurus aristulatus - Saskatchewan.

CYPERACEÆ.

Carex ? - - Lake Winipeg.
Saskatchewan.

FILICES.

Nephrodium fragrans - Lake Superior.
Equisetum sylvaticum - York Factory.
Marchantia polymorpha - York Factory.
Hydrium auriscalpum - Lake Superior.

No. III.

ARTICULATA.

Catalogue of Arachnida and Insects, collected by Mr. King, Surgeon and Naturalist to the Expedition. By J. G. Children, F.R.SS. London and Edinburgh. F.L.S. &c.

The climate and the peculiar circumstances of the expedition necessarily limit the insects collected during Captain Back's journey, to a very small number. The most abundant belong to Latreille's third Order of the class, Parasita (Anoplura, Leach), many of the individuals of which, being the companions and consequence of poverty and filth, are regarded in general rather as objects of disgust than of attraction. From this cause, and perhaps, too, from their minuteness, these insects have hitherto excited less attention amongst naturalists than their singular, and I may say beautiful, forms and structure deserve; although Redi, so long ago as 1688, wrote on the subject, and published no less than forty figures, such as they are, (including five Acari,) of Pediculi and Pulices, infesting mammalia and birds.* Since his time, they have been more or less observed by Linnæus, Geoffroy, Degeer, Scopoli, Schranke, Latreille, and others, and more especially by Leach and Nitzsch; to the last of whom we are chiefly indebted for a general and pretty complete systematic

* Esperienze intorno alla Generazione degl' Insetti.

arrangement of these tiny creatures *; but it is to be regretted that, with respect to species, he has merely given a list of names, and most frequently even without reference to any description or figure of any other author. The posthumous work of Lyonet, published by De Haan †, contains descriptions, accompanied by pretty good, uncoloured figures of a few of these parasites; and Panzer ‡ has given some tolerable coloured ones of some others; but these collectively amount to a very small proportion of the existing species; and, as to the figures to be found in the works of the older authors, they are in general almost useless. Very lately a valuable paper on three species of Philopteri, found on the albatross (*Diomedea exulans*, Linn.), has been published by M. Leon Dufour, in the Annales de la Société Entomologique de France. §

In the other Orders, the catalogue of arctic Insects, collected in the late expedition, is very small, containing, of perfect insects, only one species respectively of the Coleopterous, Orthopterous, and Hymenopterous Orders; together with one larva of some individual belonging to the Coleoptera: to these are to be added five species of the Class Arachnida, and one Intestinal Worm. But, if the present contribution to this branch of natural history be inconsiderable, we must remember under what circumstances it was formed; and that it is not the extent of the gift, but

* Die Familien und Gattungen der Thierinsekten: — Magazin der Entomologie (von Germar und Zincken), vol. iii. p. 261.

† Recherches sur l'Anatomie, et les Metamorphoses de différentes Espèces d'Insectes. Paris, 1832.

‡ Deutschlands Insekten.

§ Vol. iv. p. 669. pl. 21. fig. 1—4.

the liberal spirit of the giver, that deserves our gratitude; the widow's mite was pronounced to be more than all the rest.

Class ARACHNIDA.

Obs. The spiders were examined immediately after they had been removed from the spirit in which they were preserved.

1. Dysdera erethryna? *Walck.*

Hahn, Arachniden, vol. i. p. 7. pl. 1. f. 3.

The characters of this spider so nearly agree with Hahn's figure and description of *D. erethryna*, that I have little hesitation in referring it to that species, notwithstanding the great distance, in point of locality, between the two individuals. Hahn's spider is found in Spain, France, and Germany.

2. Theridion Backii (n. s.), *Nob.*

Villosum; thorace subcirculari, rufo: pedibus rufis, fusco annulatis, setisque undique obsitis; pari primo, secundo, et quarto longioribus, subæqualibus; tertio cæteris breviori: abdomine globoso, saturatè fusco.

This species has considerable resemblance to the female of Hahn's *T. quadri-guttatum* (pl. 21. f. 64.), but is larger, and in other respects decidedly distinct. I have named it in honour of Captain Back.

2. Tetragnatha extensa (var.), *Walck.*

Schœff. Icon. Insect. pl. 113. f. 9.

4. Thomisus borealis (n. s.), *Nob.*

Fuscus: mandibulis validis, glabris: thorace subcylindrico, convexo, glabro: pedibus ferrugineis, subelongatis, subvillosis, spinisque raris munitis; pari primo, secundo, et quarto subæqualibus, tertio cæteris breviori: cute abdominis ovati transversè rugosâ, granulosâ, pilisque raris, albido-flavis tectâ; his ad anum ventremque frequentioribus.

5. Thomisus corona (n. s.), *Nob.*

Glaber: thorace subcirculari, subfusco, fasciâ mediâ albidâ ad frontem latiori, coronæque effigiem simulante: mandibulis albidis: pedum pari primo et secundo validis, plus duplo cæteris majoribus; tertio breviori: femoribus subpubescentibus: tarsis subtus setosis, setis discretis, biseriatim positis: abdomine globoso, albido.

This species agrees very nearly with Hahn's *Th. diadema*, except in the form of the abdomen, which in the latter is angular, having posteriorly on each side a projecting lobe; whilst in *Th. corona* it is globular. Since Hahn expressly states that the male, although much smaller, exactly resembles the female, both in form and colour, the difference between his specimen and ours cannot be sexual. Moreover, Hahn takes no notice of the singular, white, coronet-shaped mark in the front of the head, in the upper projecting part of which the brilliant eyes of the animal shew like the jewels of a diadem. The four lateral eyes, as in Hahn's species, are supported on little projecting knobs.

Class INSECTA.

Order Parasita, Latr. (Anopluræ, *Leach.*)

Genus Philopterus, Nitzsch. (*Pediculus.* Linn. Fabric. *Ricinus*, Degeer. *Nirmus*, Hermann, Olfers, Leach.)

Subgenus Docophorus, Nitzsch.

1. D. communis, *Nitzsch.* Pedic. emberizæ, *Fabr.*

Degeer, vol. vii. pl. 4. f. 9.; Panzer, Deutsch. Insek. 51. 23.

Found on the Snow-bird, Chatterer, and Grosbeak. Long. $\frac{6}{100}$ poll.

2. D. platyrhynchus *Nitz.?* Pedic. hæmatopus, *Scopoli?*

Found on a Hawk, but the species not mentioned. Long. $\frac{8}{100}$ poll.

I believe this species to be identical with Nitsch's *Platyrhynchus*, the *P. hæmatopus* of Scopoli (Ent. Carniol. p. 381.), as it agrees in all respects with the latter author's description of that insect, except in wanting the dorsal line on each side of the abdomen. Our specimen very closely resembles that of the *Nirmus nisi*, in the collection in the British Museum. Nitzsch's insect is stated to have been found on the *Falco palumbarius.*

3. D. auritus, *Nob.* Pedic. auriti, *Scop.* Var.?

Dilutè fulvus: capite triangulari, glabro, nitido, apice subobtuso: temporibus rotundatis: abdomine ovato,

subpiloso, lineâ dorsali incurvatâ, nigrâ: pedibus anticis antennis vix longioribus. Long. $\frac{7}{100}$ poll.

Found on the Picus auratus.

This species so much resembles that described by Schrank (Faun. Boic.), and referred by him to *P. auritus* of Scopoli, who found it on the *Picus major*, and *P. martus*, that I have thought it right to adopt his name, but without asserting their identity.

4. D. ocellatus, *Nitzsch. De Haan.* Pedic. ocellatus, *Scop.*

Lyonet, pl. 5. f. 3. *

Found on the Corvus *corax*. Long. $\frac{7}{100}$ poll.

The British specimens in the Museum collection agree perfectly with the arctic species.

According to Scopoli and Nitzsch, it is also found on the Corvus cornæ.

Subgenus Nirmus, Nitzsch.

5. N. affinis (n. s.), *Nob.*

Albidus: capite triangulari, subfusco, glabro, nitido, apice rotundato: abdomine ovato, piloso, fasciis fuscis medio interruptis: antennis, thorace, pedibusque subfuscis. Long. $\frac{6}{100}$ poll.

Found on the Tetrao saliceti, and Ptarmigan.

This species differs from Lyonet's figure and description of the *Pou de coque de bruyere*," (which his editor, De Haan, refers to the *Nirmus cameratus* of Nitzsch,) principally in the form of the transverse dorsal

* Recherches, &c., ouvrage posthume, publié par De Haan. Paris, 1832.

bands, which in our insect extend on each side, from near the middle of the back to the sides, but in Lyonet's present a bifurcate figure, the branches of the fork terminating long before they reach the margin; the latter is bounded by a darker line from the thorax to the anus.

6. N. testudinarius (n. s.), *Nob.*

Fuscus: capite triangulari, glabro, nitido, apice temporibusque rotundatis: abdomine elliptico, subpiloso, pilis ad anum confertioribus: segmentorum dorsalium suturis, lineâque mediô longitudinali albidis: pedibus subfuscis. Long. $\frac{1}{10}$ poll.

Found on the Curlew.

7. N. biseriatus (n. s.), *Nob.*

Capite glabro, fulvo, triangulari, apice obtuso, temporibus rotundatis; thorace pedibusque concoloribus, illo lineâ mediâ, albidâ: abdomine ovato, subpiloso, albido, maculis lateralibus fulvis, biseriatim positis, exterioribus majoribus. Long. $\frac{1}{100}$ poll.

Also found on the Curlew, and, as far as I can find, hitherto undescribed.

Subgenus Lipeurus, Nitzsch.

(*Ornithobius*, Leach.)

8. L. jejunus, *Nitzch.*

Pedic. anseris, *Linn. Fabr.*

Redi, Exper. tab. 10. fig. dextra.

Found on the Grey Goose. Long. $\frac{15}{100}$ poll.

This species differs from the parasite of the *Domestic Goose* in the British Museum collection; but appears to be identical with another species in the same collection, to which neither name nor habitat is affixed.

Subgenus Goniodes, Nitzsch.

9. G. chelicornis, *Nitzsch.*

Lyon. pl. 4. f. 7.

Found on the Tetrao saliceti. Long. $\frac{1}{10}$, lat. abdom. $\frac{55}{1000}$ poll.

Genus Liotheum, Nitzsch.

(*Pediculus*, Linn. Fabr. *Ricinus*, Degeer, Latrielle. *Nirmus*, Hermann, Olfers, Leach.)

Subgenus Colpocephalum, Nitzsch.

10. C. subæquale, *Nitzsch.*

Lyon. pl. 4. fig. 5.

Found on the Corvus corax. Long. $\frac{8}{100}$ poll.

Subgenus Physostomum, Nitzsch.

11. P. sulphureum, *Nitzsch?* Pediculus dolicocephalus, *Scopoli?*

Albus: toto corpore glabro: capite oblongo, apice rotundato: abdomine elliptico, subtus marginato; maculis frontalibus, vittâque dorsali sanguineis. Long. $\frac{14}{100}$ poll.

Found on the Snow-bird.

12. P. marginatum (n. s.), *Nob.*

Albidus: capite oblongo, fusco maculato, apice obtuso: thorace abdomineque marginatis, lineâque fuscâ circumdatis: pedibus albidis. Long. $\frac{14}{100}$ poll.

Except in size and colour, this species very much resembles Degeer's *Ricin du Pinçon.*

Order COLEOPTERA.

Bostrichus typographus, *Fabr.*

Var. b. "corpore toto pallidè testaceo." Gyllen. Insect. Sueci., tom. i. pars 3. p. 351.

From dried Pine.

2. Larva — incertæ sedis; — an Dircææ cujusdam?

I am induced to think it probable that this may be the larva of a Dircæa (*Xylita*, Paykull), from its almost perfect accordance with Mr. W. S. Macleay's description of the thysanuriform larva of the *Xylita buprestoides*, (Horæ Entomologicæ, note, p. 464.) As Mr. Macleay's work is, unfortunately, very rare, it may be useful to transcribe his description: — "*Larva*, whitish, elongate, scaly, "with few hairs, except about the last segment of the "abdomen; body thickest at the middle and tail, upper "side rather convex, under concave; head semi-"globular, with vestige of eyes; antennæ triarticulate, "short, with the first joints greatest; mandibles short, "strong, and sharp; maxillary palpi acute at point, "and labial excessively minute; second segment of the "body large, subthoraciform, and composed apparently "of two segments; anterior feet large, compressed, "hooked, extending nearly to the top of the head; "the two posterior pairs of the same shape, but so "short as scarcely to reach beyond the coxa of the "first pair, besides being in some measure hid in the "concavity of the body; the third segment of the body "is shortest, and the others lengthen gradually to the "12th, which is convex, and marked with strongly "impressed points; but the singular part of the body is "the tail, or 13th segment, at the base of which is the "anal aperture: this segment is slightly convex above,

"and flattish below, but armed at the extremity with "two sharp horny appendages, curved upwards." — Macleay's larva was found, together with the perfect insect, in the solid wood of an old oak in Hampshire, by Mr. Samouelle.

The above description applies to our larva, except that its colour is light yellowish brown, and the feet equal; and, in addition to the horny appendages at the extremity, the two caudal processes and the posterior margin of the last or anal segment, are armed with similar sharp horny spines.

Length 0.45 in.

Found in dried Pine.

Order ORTHOPTERA.

Acridium sulphureum, *Pal. de Beauv.*

Palis. de Beauv. Ins., rec. en Afr. et Am. p. 145. Orthopt. pl. 4. f. 2.

Palisot du Beauvais' insect is from Virginia.

Order HYMENOPTERA.

Formica herculeana, *Linn.*

Var. thorace nigro, *Shuck. M. S.*

Linn. Faun. Suec. p. 426. No. 1720.

My friend Mr. Shuckard, who is intimately acquainted with this Order, and examined this species at my request, observes: — "The identity of Captain "Back's species with the *F. herculeana* of Linnæus, is "interesting, from its being the first proof I am ac- "quainted with, of the same species of hymenopterous "insect inhabiting both the European and American "continents. These ants are, indeed, smaller than the "European species; but climate is well known to affect "developments."

RADIATA.

Class Intestina (*Entozoa*, Rudolphi).

Ascaris ———?

I cannot satisfactorily refer this to any described species. It seems not very unlike Rudolphi's *A. crenata*. No account is given of its habitat.

No. IV.

GEOLOGICAL NOTICE

ON THE NEW COUNTRY PASSED OVER BY CAPTAIN BACK DURING HIS LATE EXPEDITION.

By William Henry Fitton, M.D. F.R.S. G.S. &c.

The country near the entrance of Slave River into Great Slave Lake, where the route of Captain Back struck off, has been described by Dr. Richardson, in his valuable geological appendices to the first and second journeys of Captain Sir John Franklin. The following observations have been drawn up, principally, from the notes taken by Captain Back himself in the course of his arduous journey, from that point to the sea, aided by an examination of the specimens which he brought to England. In arranging them in the order of the route, I have adhered, as far as possible, to the original words: —

"On quitting Fort Resolution (a station of the Hudson's Bay Company, near the mouth of the Slave River), we went through some of the winding channels formed by the numerous islands in the Delta of Slave River; and, having passed Stony Island, which, — as Dr. Richardson remarks in the appendix to Franklin's first journey, — is a naked mass of red granite, fifty or sixty feet high, precipitous on the north side, and lying near the junction of the flat limestone strata with the primitive rocks. — We then kept along the low and swampy shore, thickly

matted with drift-wood, and made for a jutting elevation, called Rocky Point, where the lake trends to the eastward, and struck off in a northerly direction towards a distant cluster of islands on the south of Simpson's Group, which are mostly granitic, and composed of reddish felspar, quartz, and mica. The more northern of these islands attain a greater elevation, from 200 to 1000 feet, resembling the bluff and broken features of those to the westward, near the "Gros-cap" of Mackenzie, but still more like the red granite hills of Fort Chipewyan and upper part of the Slave River. They are very unlike the low swampy limestone tracts which we had left; and almost totally destitute of the drift-timber piled in such immense quantities about Fort Resolution and the more western shores of the lake.

"The clear green north-eastern waters here contrast strongly with the turbid yellow streams of the Great Slave Lake, hurrying rapidly towards the Mackenzie Conical isolated hills are in various places separated by narrow passages from the larger islands, whose picturesque outlines, rent into vast chasms and fissures, and rising to upwards of 1200 feet, are very imposing.

"Near to the most northern of this chain of islands, Point Keith projects from the eastern main; and the channel, between that point and the northern shore of the lake, is interrupted by an island called *Eth*-thenu-eh *, or Reindeer Island, remarkable for its table-land; with perpendicular cliffs resting on sloping and irre-

* This little island is not named in the annexed map. It is immediately on the south of the date "August 14th," and south-west of the prolonged extremity of *Peth*-the-nu-eh. It is to be observed, that there is a small group in the lake also called "Reindeer Islands," north of the entrance of Slave River, and about north-west of Rocky Point.

gular declivities, which gradually descend to the water's edge." Captain Back remarks, that a point which forms the western extremity of a small bay, in this part of the lake, consists of a mass of boulders, cemented into a kind of puddingstone by yellowish and indurated clay, to a height of from six to forty feet: the subjacent rocks, as they receded from the lake, acquiring an altitude between 1400 and 2000 feet.

The point which we next rounded was steep and perpendicular; and from it the natives obtain a variegated marl, of a greenish grey colour, of which they make their calumets and pipes. A similar substance, of a reddish tint, and also one of a pure white, both admitting of a high polish, are found beyond the western limits of the lake.

Proceeding to the north and east, along that portion of the lake which separates the long island of Peth-the-nu-eh from the northern main, the island itself has an imposing appearance; its rocks, of the trap formation, exhibiting long lines of mural precipices, resting one upon another, and capped by even and round eminences thinly clad with meagre pines. "It was impossible to look at them without being forcibly reminded of the same appearances, but without trees, seen on a former occasion between the Coppermine River and Point Barrow, where the rocks are described by Dr Richardson* as consisting of clinkstone, porphyry, and earthy greenstone, which extended to the mouth of Wenzel's River." And, from this resemblance, Captain Back conjectures that the trap formation may probably run in a line almost due south to Great Slave Lake, where it is lost in the granitic district occupying an extensive range to and beyond Chipewyan.

* Franklin's First Voyage, Appendix, p. 530.

But, though the trap formation seems to predominate in Peth-the-nu-eh, the specimens from that side of the island which forms the shore of Christie's Bay are composed of magnesian limestone, like that of Dease's River, and many other places mentioned by Dr. Richardson. *

The main shore of the lake on the north and west of Peth-the-nu-eh is also mountainous and rocky, consisting chiefly of gneiss and porphyry. At a contracted part of the channel, called by the natives Tal-thel-leh, it is said never to freeze; and this Captain Back's experience proved to be the case during two winters. On the east of this place, an island was seen, displaying a barren and rounded outline to the north, but on the south distinctly columnar. No specimens were obtained from it; but a drawing of Captain Back's leaves no doubt as to its structure, the columns being well defined and regular.

Columns in a small Island, east of Tal-thel-leh.

The altitude of the north shore of the lake varies but little thence to the point called by the natives "The Mountain"; — so named, however, not from any remarkable prominence, but to distinguish the spot where the

* Appendix to Franklin's Second Voyage, p. xiv.

natives leave their canoes when striking into the interior. From the "mountain," the opposite peninsula of Gah-hooa-tchel-la, (or Rabbit Point,) has a bold and picturesque appearance, being more than 2000 feet high, almost perpendicular, and evidently a continuation of the (trap) formation of Peth-the-nu-eh, from which it is separated on the south and west by an opening leading to Christie's Bay. The shores of the eastern part of the lake, as they approach each other, still retain their distinctive characters: that on the north being round-backed and grey, with a few trees; but that to the south precipitous, cliffy, and almost barren. The rocks, enclosing the east end of the lake, around the bay on the north of which Fort Reliance was placed, are very like those already passed, but more acclivitous.

The specimens from Fort Reliance (which are marked "undulating rocks of considerable altitude") consist of granite, having somewhat the aspect of sienite, but composed of reddish felspar, brown mica in small proportion, and grey quartz. On the beach was found a mass of conglomerate of flint pebbles, cemented by sand and slightly effervescent matter. The pebbles, loose on the shore hereabouts, consist of chalcedony, quartz, flinty slate, a conglomerate of red jasper pebbles in a siliceous dark grey cement, with fragments of jasper of various hues, inclining to brown.

The sandy space, where the house, or "Fort," was erected, was about three miles broad, and hemmed in, on the east and west, by two rivers, which ran respectively along the bases of parallel ranges of granitic hills. The sand was comparatively level; and in the space of half a mile were two more platforms, with embankments rising gradually towards the rocky valleys which led to the barren lands. It seemed as if the water of the Great

Slave Lake had once been so high as to have had the upper of the embankments for its boundary, and had since subsided.

Immediately on the north of the "Fort," including the space between Hoarfrost River and the Ah-hel-desseh (the stream leading from Slave Lake to Artillery Lake), the country is mountainous, and consists for the greater part of granite, in which red felspar and large plates of mica are conspicuous. The ascent here towards the barren lands may be taken at 1400 feet. On the north, along Artillery Lake, the country assumes a more open aspect, with sloping moss-covered hills, on which are rarely scattered clumps of wood; but in latitude 63° 15′ N. the pine disappears altogether, and there it is that the "barren lands" fairly commence.

The country from Artillery Lake to Clinton Colden Lake, and thence to Lake Aylmer, is characterised by the small altitude of the hills, which are more or less covered with large boulders of granite, and decline to the water's edge.

In these lakes islands are numerous; many of them consisting of great unbroken masses of granite, on the summits of which are huge stones and splintered fragments of rock. Similar boulders had been observed near Fort Enterprise during the first journey of Sir John Franklin, where, in fact, the height of land seems to be a continuation of this tract, and to be of the same character. Sand was seen at first along the beach, but soon rising into banks and mounds: and, finally, at the northern extremity of Lake Aylmer, forming hills of some magnitude, which decline to the north-west, and indicate the height of land that feeds Sussex Lake,—the source of the Thlew-ee-cho-dezeth.

Sussex Lake is small, and encompassed by low shelv-

ing declivities. To the west of it is a low ridge of sand-hills, which terminate abruptly, and form a passage for the escape of the waters towards the north. Within a mile of the lake is a slight descent that way, forming a shallow rapid only a mile distant from Lake Aylmer, — the surface of which lake may be considered as three feet below the highest part of the dividing land. The river then winds its way through sand-hills, declining to the north-west; and, about four miles down the stream, passes the first rocks of gneiss *in situ:* — they have an even and tabular surface; and are broken into perpendicular cliffs, about five feet high, which fall to the east.

About five and twenty miles on the north-east of Lake Aylmer, the river cuts its way transversely, but without changing its direction, through a range of mountains running east and west, and then becomes very much interrupted by rapids. Sand-banks begin to appear again, and hills with "long sloping declivities, "partially covered with the usual blocks of granite"; — till within sixty miles of Bathurst's Inlet, latitude 65° 40′, longitude 106° 35′, where a barrier of mountains, probably continuous with the ranges to the east of that inlet, turns the river away to the east at an acute angle, for about thirty miles." Lake Beechey occupies the bend produced by this obstruction. The rocks around it were very rugged and desolate *; but, as the expedition was at this time passing rapidly down the stream, no specimens were obtained. Some cascades, a mile and a half long and sixty feet in descent, terminated the lake; and then the river followed the windings of a

* In many places, Captain Back observes, the ruggedness of their aspect reminded him of that of the lava round Vesuvius.

group of sand-hills, many of which were conical and partly covered with grass.

Three isolated mountains of gneiss were seen about forty miles from the east end of Lake Beechey; and a few miles lower down, on the opposite side to these mountains, is the ingress of Baillie's River. The country now became low, flat, and very sandy, with an occasional smooth hill rent into watercourses; and not more than half a mile from each other, were the obtuse and rounded tops of a few dark rocks, that peeped above and chequered the surface of the yellow sand. It then changed to a mass of rocks, (Hawk Rapid,) between which the current ran with extreme violence, but without much change of general direction. The specimens from this place consist of reddish granitic compound approaching to gneiss.

Beyond these rapids, several rivers joined from both sides, and the main stream expanded into an extensive sheet of water (Lake Pelly), with clear horizons at different points of the compass. There were here many islands; and the ridges and cones of sand of which they were composed were not only of considerable height, but most singularly and remarkably crowned with immense granite boulders, grey with lichen.

A succession of dangerous falls and rapids follows this series of lakes, the course of which is very tortuous; but the main direction, from the beginning of Lake Pelly to Lake Macdougal, is nearly from west to east. At Rock Rapid, in latitude 65° 54′ 18″, longitude 98° 10′ 7″, the river bursts with fury between four mountains of reddish granite, and turns short to the north.

The stream now became from half a mile to a mile in width, with fearful rapids and whirlpools; and the adjoining country was far more rugged and mountainous

thanb efore. The rocks were evidently granitic; but no specimens were collected, as the party were carried down the stream in their boat.

Having passed through another small lake, or expansion of the river, much impeded by ice, the stream turned again to the east, and led to a steep fall, where Esquimaux were found who had never seen Europeans.

From about the point called Wolf-Fall, the course of the river is nearly from south-west to north-east; and, after an abrupt and remarkable elbow on the north of Mount Meadowbank, it runs in the bottom of a trough, or deep valley, to its junction with the sea.

The object of the expedition having rendered it necessary that the party should proceed in their boat on arriving at the sea, very few specimens or notes descriptive of the rocks were obtained in the remotest part of the route. The only specimens are from a "bluff" (Point Backhouse) on the north-west of Victoria Headland, which consists of reddish granite; and from another bluff beneath Point Beaufort, composed of a similar rock of a grey colour; — both on the eastern coast of the inlet, which forms the estuary of the Thlew-ee-choh-dezeth.

The new ground therefore explored by Captain Back, from Slave River to the sea in the parallel of 67° 10′, with only two or three exceptions, is composed, so far as appears from his notes and specimens, of primitive rocks; a result which might have been expected from the description of the country previously known, which indicates a distinct line of boundary, in the north-east of America, between the calcareous and primitive tracts; the latter including the space traversed during Captain Back's late expedition. The exceptions are: — 1. A

portion of the north-east of Great Slave Lake, —including the long island of Peth-the-nu-eh, and one, at least, of the smaller islands adjacent to it, which Captain Back describes as composed of trap rocks, but which include also strata of limestone. 2. — Perhaps, the rugged ground about Lake Beechey? which, from the description, appears to differ much in aspect from the primitive country. 3. — Limestone is mentioned in the narrative, as having been found in small fragments, on the shore of Montreal island, in the estuary of the Thlew-ee-choh-dezeth. *

On a general view of the map of Captain Back's late expedition, it may be remarked that the river is obviously divided into three portions (and the eastern part of Slave Lake itself may perhaps be considered as resembling them), all nearly parallel, and lying in a direction from about south-west to north-east, allowance being made for the convergence of the meridians in those high latitudes. These portions are: 1.—The Thlew-ee-choh-dezeth, from its source in Sussex Lake, to the head or north-western extremity of Lake Beechey. 2. — From the curve a little eastward of Baillie's River, to the north-western extremity of Lake Pelly. 3. — From Wolf Fall, — and, more distinctly, from the rapids north of Mount Meadowbank, to the sea. 4. — Slave Lake itself, from the entrance of Slave River to Fort Reliance, — and the river which connects it with Artillery Lake. The first of these divisions being about eighty-five English miles in length; the second, nearly an hundred

* Instead of this unwieldy name for the newly discovered stream, that of "*Back's River*" has been suggested; the most appropriate denomination, in such a case, being that of the discoverer.

miles; the third, reckoning from Wolf Rapid, about an hundred and twenty miles, — or, from the north of Mount Meadowbank, more than ninety miles in length; while the less uniform line from Slave Lake, at the entrance of Slave River, to the head of Artillery Lake, is more than two hundred and fifty miles.

Again, the watercourse which unites the several portions above mentioned has likewise, in two cases, some approach to parallelism; the chain of lakes, from Lake Aylmer eastward, having a direction to the south of east, through a distance of nearly an hundred miles; and that from Lake Beechey to the east of Baillie's River, nearly the same general direction, for about eighty miles. The waters which connect Lake Pelly with the sinuosities about Wolf Rapid, comprehend a series of lakes of very irregular form, and the stream which unites them is tortuous, but has, nevertheless, a general direction nearly from west to east.

It is almost premature to speculate on evidence so scanty as that which has just been stated; but it is probable both that the parallel portions of the river, and the less regular transverse lines which connect them, are the results of geological structure. The parallel lines along which the river makes its way towards the north-east, from the ground dividing the water-shed at Sussex Lake, — and the general course of Great Slave Lake thence towards the south-west, may, possibly, be longitudinal valleys between parallel ridges of small elevation, directed from south-west to north-east.*

* This, Dr. Richardson states, is the average direction (or, 'strike') of the primitive and transition strata, through about twelve degrees of longitude, over which his own journeys extended. It is also the direction of the strata in

While the rocky and elevated ground about Lake Beechey, which turns the river from its previous direction, may be a continuation of the mountainous tract about Back's River, and on the east of Bathurst Inlet, the general course of which seems to be from the south of east towards the north of west. This also is the direction of the range of hills, laid down during the first of Franklin's journeys, near the Coppermine River, about latitude 66° 32′, longitude 115° to 116° W.* The irregular ground between those hills and Heywood range of Captain Back (latitude 64° 50′, longitude 108°), includes the group of lakes about Point Lake; between which and Contwoy-to, or Rum Lake, is the division of the water-shed, which has the same general direction with the ridge or height of land that divides Sussex Lake from Lake Aylmer, and, possibly, may be a continuation of it.

As the existence of lines of division, like those just mentioned, is one of the most prominent general circumstances hitherto ascertained respecting the geology of this part of America, I have great pleasure in subjoining the following observations from a letter of Dr. Richardson, by whom in person many of the points in question have been examined. They will be perfectly intelligible if the reader will place before him Arrow-

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many of the ranges in the British Islands, and on the Continent of Europe.

* In the last of the maps annexed to Franklin's first journey, the direction ascribed to this range, Dr. Richardson informs me, is erroneous. It is there described as consisting of "hills running in mountain ranges to the *South* "(instead of *North*) West; clay slate, with peaks of from "1,200 to 1,500 feet high."

smith's, or any other good general map of North America.

"The course of the *Rocky Mountains* chain," Dr. Richardson states*, "from the Sierra of Mexico, in "latitude 30°, to its termination on the coast of the "Arctic Sea, in latitude 69°, is about N. by W., with "very little deviation any where. The chain rises "abruptly from a flat or very slightly inclined country, "in which the great *prairies* of the Arkansas, Mis- "souri, and Saskatchewan are included. To the "eastward of these prairie lands (at least N. of Lake "Superior), there is an extensive limestone deposit; "and between this and the primitive zone of hills or "rocks still farther east" — (to which may now be added the greater part, if not the whole, of the tract explored by Captain Back), "a series of rivers and "lakes, occupying the line of junction, and extending "from the Lake of the Woods to the Arctic Sea."

"It is to be noticed, however, that although the lakes "on this line almost always have primitive rocks on the "east side, and limestone on the west, the connecting "rivers generally run wholly in one formation or in the "other. Thus, the River Winipeg flows through pri- "mitive rocks; the edge of the limestone being a short "way to the westward. We can trace the formation "up the east side of Lake Winipeg to Norway Point, "and from thence straight to Beaver Lake; the Sas- "katchewan to the westward flowing over limestone, "which is close to the primitive strata in Beaver Lake, "The Missinippi or Churchill River† traverses pri- "mitive rocks."

* MS. letter, March 28. 1836.

† Dr. Richardson remarks, that "The character of this

" We lose the primitive rocks at Isle la Crosse, " where there is limestone; and at Portage la Roche we " cross a high sandstone ridge, covered with much sand.* " The Clear-water River, at the foot of this ridge, flows " over limestone, which is also seen in the Athabasca " River, but under much bituminous shale. On the " north side of Athabasca Lake (or Lake of the Hills), " the rocks are primitive, and the Slave River flows " sometimes through limestone, at other times over " granite, and sometimes between the two. Its mouths " open into Slave Lake between the limestone and " granite.

" river is precisely similar to that of the Thelw-ee-cho-dezeth: " a series of lake-like and many-armed dilatations, connected " by narrow rocky rapids, sometimes one, sometimes many, " separated by high rocky islands. There are some curious " islands in the Missinippi, consisting of large granite " boulders, or rounded masses, piled one above the other to " a great height; and on their upper points, where they are " out of the reach of the waves, they are hoary with lichens. " The water immediately surrounding these islands is many " fathoms deep; and on looking at them, I was inclined to " think that the soft parts of a granite rock had weathered " away, and left these rounded and harder masses so piled " up."

* The frequent occurrence and thickness of the deposits of sand in this part of North America, appear, both from Dr. Richardson's description of the country seen during the preceding expedition east of the Mackenzie, and from Captain Back's notes of his journey, to be remarkable. It well deserves inquiry, whether these accumulations are the deposite of the (comparatively) recent seas, during their occupation of that continent, or belong to the secondary or tertiary groups of strata.

" By carrying the eye over the map from point to " point above mentioned, it will be seen that the western " boundary of the eastern primitive rocks as it runs north- " ward, inclines towards the Rocky Mountains. There " are no prairie lands north of Peace River, and no flat " country skirting the Rocky Mountains beyond Great " Slave Lake. I have seen the Rocky Mountains only " on the M^cKenzie, and there from a distance; but the " great valleys seemed, as I viewed them in passing " down the river, to cut the general direction of the " chain at right angles. A Canadian, who had crossed " the mountains in the quarter I speak of, said that he " travelled over thirteen separate ridges. He did not, " therefore, go directly across the general line of the " chain: — or, the valleys, that I saw, do not penetrate " deep.

" I cannot," Dr. Richardson adds, " give any personal " information respecting the country to the eastward of " what I have hitherto been speaking of. The high pri- " mitive hills on the Coppermine River (p. 525. of " Geognostic Observations, first journey,) lie in ranges " nearly parallel to the river, having a *north*-west direc- " tion (and *not* a *south*-west, as erroneously marked in " the map). These primitive rocks extend to the Cont- " woy-to, or Rum, Lake, and, I doubt not, also to " Back's new River. There are limestone deposits " between the eastern primitive rocks and Hudson's " Bay, and also northward, on the Arctic Sea, where " Captain Ross was.

" All the primitive rocks in that part of the country " which I have called the " eastern primitive district " " are low, and do not form mountain ranges, except " on that part of the Coppermine River already al- " luded to."

The specimens and information obtained by Captain Back, in that part of his route which preceded his own discoveries, accord with the previous descriptions of Dr. Richardson; and as the places referred to can be but seldom visited, I shall subjoin a general list of the specimens. Among the most remarkable are several fragments of a white or cream-coloured limestone from the north-western extremity of Lake Winipeg, very much resembling a series presented to the Geological Society some years ago (in 1823) by Dr. Bigsby, from the north-western shore of Lake Huron, — a spot more than 600 geographical miles from Lake Winipeg.*

* From Dr. Bigsby's account of the country around Lake Huron, and thence to the south-east, it would appear that the line of division between the primary and secondary rocks, is continued from the neighbourhood of Lake Winipeg, nearly in the same direction with that above specified, for several hundred miles: —

"The northern shore of Lake Huron, with its nearest "isles, consists principally of the older rocks; the secondary "occupy the rest of the lake. The primitive rocks are "part of a vast chain, of which the southern portion, ex- "tending, probably uninterruptedly, from the north and east "of Lake Winipeg, passes thence along to the northern "shores of Lakes Superior, Huron, and Simcoe; and after "forming the granitic barrier of the Thousand Isles, and "the outlet of Lake Ontario, spreads itself largely through "the State of New York, and then joins the Alleghanies "and their southern continuations.

"The secondary rocks of Lake Huron are a portion of an "immense basin, which, extending probably without inter- "ruption, from the southern shore of Lake Winipeg, spreads "itself over the greater part of Lakes Superior, Huron, and "Simcoe — the whole of Lakes Michigan, Erie, and Ontario; "much of the western part of the State of New York, — the

Having requested my friend Mr. Stokes, by whom some of Dr. Bigsby's specimens were described, to examine this part of Captain Back's collection, I have been favoured by him with the following observations; and I hope that Mr. Stokes himself will soon lay before the Geological Society a paper, accompanied by figures, illustrating the structure of these very interesting fossil remains.

"Among the limestone fossils brought by Captain "Back from Lake Winipeg, are some like those which "were obtained by Dr. Richardson from the same "locality in the year 1820, but which were not in a "state sufficiently perfect to enable us to understand "their structure and relations. A memorandum having "been given by Dr. Richardson to Captain Back, of "the spot from whence the fossils were obtained, "the latter has succeeded in procuring several speci-"mens, which, although broken, are sufficiently well "preserved to illustrate the nature of these remains. "They are orthocerata of a peculiar kind, and resemble "in their most important points those found at Thes-"salon Island in Lake Huron, and described by Dr. "Bigsby in the Geological Transactions (Second Series, "vol. i. pp. 192. and 195. to 198.). They are, how-"ever, probably not of the same species; but the "point of resemblance is the structure of the siphon, "which has a tube within it, as described and repre-

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"whole of the States of Ohio, Illinois, Indiana, and Michigan, "and the rest of the Valley of the Mississippi." — (Geol. Trans. 2d Series, vol. i. pp. 188—191.) See also "Notes "concerning the Geology of North America, from Papers "presented to the Society by the late Earl Selkirk." (Geol. Trans. 1st Series, vol. v. p. 598, &c.)

" sented in Plates XXV. figs. 1, 2, 3. and XXVI. " fig. 7. of the volume above referred to. This tube is " continued through the whole length of the siphon, " and from its present irregular shape appears to have " been composed of a coriaceous substance, capable of " dilatation and contraction. The space within the si- " phon, between its interior walls and the outside of " the included tube, has a number of plates radiating " from the latter, throughout its entire length, and " apparently connecting it with the inner walls of the " siphon; but these plates are too much covered by " sparry crystallisation to enable us clearly to make out " their character. This tube may have been the organ " into which water could be received, when the animal " required an increase of its specific gravity in order to " descend; a purpose which is supposed to be served " by the siphon of the nautilus and other chambered " shells.

" There is also one specimen, which, though not in " good preservation, is doubtless a Catenipora or chain " coral, a genus characteristic of the older transition " limestones, in which beds also, orthocerata are " common."

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*General List of Specimens, brought to England by Captain Back.**

From the Athabasca (or *Elk*) River; (probably from one of the Portages).—Porphyritic, grey, compact felspar, enclosing grains of quartz, and of crystalline felspar.

* These specimens have been compared with those in Dr. Richardson's collection, now in the museum of the Geological Society, of which a list is given in the Geological Appendix to Franklin's Second Journey. The numbers of the corresponding specimens in that list are indicated below.

Cream-coloured limestone, effervescing slowly, containing impressions of shells, and occasional nests of crystallised magnesian carbonate of lime, and in some places stained with bitumen *: found in horizontal strata on the bank of the river. This rock much resembles some of the specimens from the "Ramparts" on the Mackenzie River — Dr. Richardson's list, Nos. 148—156. p. xxxiv. xxxv.; and from Lake Winnipeg, No. 1014. p. liv.

GREAT SLAVE LAKE. — Hard slaty limestone, effervescing very slowly. "From an island of large extent in horizontal strata." Compare with Richardson's, Nos. 60. 132. p. xxxi.; 205. p. xliv.; 246. 293. p. vi.

From CHRISTIE'S BAY (Peth-the-nu-eh). — Slaty (magnesian) limestone, with a vein of sparry magnesian carbonate of lime. Compare with Dr. Richardson's, No. 228. p. v. from the mouth of Dease's River, head of Great Bear Lake; and 208. p. xiv. from Cape Parry.

From a small bay in GAH-HOOA-TCHELLA. — A specimen, which formed part of a boulder, found loose on the beach by Mr. King the surgeon of the expedition, consists of limestone, effervescing copiously, and exhibiting on the decomposed surface concretional grains like some varieties of oolite; and containing also portions of a fossil, the external structure of which resembles the genus Stromatopora of Goldfuss.

Among the specimens which have an organised structure, probably from the shores of this lake, is one with a tuberculated surface, composed of calcareous matter, which Mr. Lonsdale considers as belonging to the genus *Stromatopora* of Goldfuss, and probably to his species *polymorpha* (Plate LXIV. fig. 8. d.)

* This occurrence of bituminous matter in limestone, nearly bordering on a large tract of crystalline and igneous rocks, may deserve attention with reference to the hypothesis of *Dolomization*; which regards the introduction, or development, of magnesia as subsequent to the deposition of the calcareous matter, and as connected with the proximity of masses containing that earth, and heated to a very high temperature.

From FORT RELIANCE, *at the Eastern Extremity of Great Slave Lake.* — Granite of several varieties. Some specimens having the aspect of sienite; others containing flesh-red felspar, in large crystals,— described as "forming undulating rocks of considerable altitude." Some specimens from this quarter approach to gneiss; having a foliated structure, with mica in very large proportion.

From the beach, at the entrance of the Lake, is a siliceous conglomerate; consisting of worn pebbles of flint, cemented by a paste composed of sand and calcareous (effervescent) matter.

The following were found in the form of loose worn pebbles, on the shore of the lake, near Fort Reliance: — Bluish grey strip chalcedony; quartz crystals; quartz of various shades of grey and brown; flinty slate; brown jasper; with fragments of a conglomerate, consisting of portions of reddish jasper, in a dark grey paste.

From HAWK RAPIDS. — (Lat. 66° 33°, Long. 102° 40′) — Reddish granite; some specimens indicating a slaty structure. Grey quartz, apparently a portion of a vein.

From ROCK RAPID. — (Lat. 65° 50′, Long. 98° 20′) — Granite of different shades of reddish and grey.

From POINT BACKHOUSE, in the estuary of Back's River. — Reddish granite of moderately fine grain.

And lastly, — *From a "Bluff*, NORTH OF POINT BEAUFORT." — Bluish grey granite of fine grain.

No. V.

METEREOLOGICAL TABLE,

ARRANGED FROM THE REGISTERS KEPT AT FORT RELIANCE BY CAPTAIN BACK AND MR. KING.

The following table exhibits the temperature of the air and principal atmospherical phenomena observed at Fort Reliance, from the commencement of November, 1833, to the end of May, 1834; and from the 22d of October, 1834, to the 18th of March, 1835.

The temperatures were registered fifteen times in the twenty-four hours, between six o'clock in the morning and midnight. The daily means were obtained from the fifteen observations. The four thermometers which were used were coloured spirit ones, made by Newman, and were hung up on the north side of the observatory where they were registered; but finding that they varied from each other as the temperature decreased, and that one gave nearly the mean of the whole, it was afterwards used as the standard thermometer, and from it the observations were made.

The remarks made on preceding voyages regarding the generally calm state of the atmosphere during intense cold are in a great measure corroborated by the following table, though in some few instances it will be seen that a very low degree of the thermometer was accompanied by a breeze preceding or immediately following a calm.

Abstract of Meteorological Journal for November, 1833, kept at Fort Reliance.

November.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	+ 16·03	+ 21·50	+ 9·00	N.E. East.	7.1		Clear. Misty. Snow.
2	+ 25·61	+ 31·00	+ 20·50	S.E. N.E.	4.6	Clear.	Snow. Overcast.
3	+ 33·35	+ 37·50	+ 29·00	E.S.E. S.W.	3.6	Bright.	Hail. Rain. Clear
4	+ 28·68	+ 33·50	+ 23·00	W. Calm. N.E.	4.2		Gloomy. Snow.
5	+ 22·19	+ 27·00	+ 17·00	S.b.W. N.W. N.E.	4.3		Overcast. Misty. Spiculæ. Trees covered with hoar frost.
6	+ 12·29	+ 20·00	+ 7·85	E.B.N.	4.6	Faint.	Cloudy. Variable.
7	+ 24·48	+ 29·00	+ 19·50	S.W. S.E. N.E.	4.3	Faint.	Clear.
8	+ 23·71	+ 29·00	+ 12·50	E.b.N.	1.5	Faint.	Cloudy. Variable.
9	+ 16·09	+ 18·00	+ 12·00	E.N.E. Calm.	1		Gloomy. Misty.
10	+ 26·01	+ 28·50	+ 23·00	N.W. S.W.	6.7		Overcast. Snow.
11	+ 20·61	+ 24·00	+ 15·50	N.W.	7.1	Faint.	Gloomy. Misty.
12	+ 12·73	+ 18·25	+ 1·00	E. N.E.	2.5	Clear.	Snow. Overcast. Misty.
13	— 2·83	— 1·00	+ 9·50	E. N.E.	5.2	Faint.	Variable. Clear.

14	+ 1·98	+ 9·00	— 5·00	E. N.E.	2.5	Clear.	Cloudy. Snow. Clear. Bay frozen over.
15	+ 16·37	+ 28·50	— 2·00	N.E. S. W.B.N.	4.10		Gloomy. Snow. Squally.
16	+ 10·28	+ 20·50	— 1·00	N.W. N.E. Calm.	8.2		Overcast. Misty.
17	+ 11·38	+ 17·00	+ 8·00	E.b.S. S.E.	3.6		Cloudy. Clear.
18	+ 15·37	+ 22·00	+ 5·00	Variable. E.B.S.	5.4	Clear.	Variable. Foggy.
19	+ 27·31	+ 30·50	+ 20·00	S.E. S.W.	2.7	Faint.	Gloomy. Misty. Snow. ☽
20	+ 1·66	+ 16·00	— 11·50	E. N.E.	3.1	Clear.	Clear.
21	— 6·41	— 3·00	— 10·50	W.b.N. E.b.N. Calm.	5.1	Faint.	Cloudy. Clear. Luminous vapour 6 miles off on the lake.
22	+ 3·94	+ 10·90	— 4·50	Calm. S.W.	4		Clear.
23	+ 8·88	+ 12·00	+ 2·00	N.N.W. N.E.	2.3	Faint.	Clear. Overcast. Lunar halo.
24	+ 11·43	+ 17·00	+ 6·00	N.N.W. N.E.	2.3		Clear. Overcast.
25	+ 22·06	+ 30·75	+ 6·00	S.W. N.W.	8.5		Gloomy.
26	+ 4·16	+ 7·00	— 3·00	N. N.E.	3.2		Partially clear. ☾
27	— 0·29	+ 3·00	— 5·00	East.	6.3		Variable.
28	+ 15·15	+ 25·00	+ 8·00	E.S.E. S.W.	5.6		Gloomy. Snow. Hazy.
29	+ 26·43	+ 28·50	+ 23·00	S.b.W. N.E. Calm.	2.1		Overcast. Light snow.
30	+ 16·03	+ 24·00	+ 13·00	S.W. N.E.	6.2		Hazy. Gloomy. Snow.
Means	+ 14·82	+ 20·54	+ 7·62				

Abstract of Meteorological Journal for December, 1833, kept at Fort Reliance.

December.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	+ 17·43	+ 20·00	+ 11·00	N.N.E. S.W.	2.5		Snow. Overcast. Misty.
2	+ 15·50	+ 19·00	+ 9·00	N. S.b.W.	3.5		Gloomy. Snow. Foggy.
3	+ 9·71	+ 13·00	+ 7·00	N. N.N.E. Calm.	4.2		Gloomy. Snow. Overcast.
4	+ 14·51	+ 15·00	+ 11·00	N.E.	1.2	Faint.	Variable. ☾
5	+ 16·32	+ 19·00	+ 14·00	East. S.W.	1.2		Gloomy. Snow.
6	+ 3·58	+ 16·00	— 18·00	S.W. East.	6.2	Faint.	Overcast. Snow.
7	— 15·59	— 12·50	— 18·50	E.b.N. N.E.	2.4	Clear.	Clear.
8	— 8·24	+ 1·00	— 17·75	E.N.E. East.	6.2		Clear. Hazy. Snow
9	+ 14·26	+ 17·00	+ 8·50	E. S.S.W.	1.2		Gloomy. Snow.
10	+ 12·57	+ 15·00	+ 9·00	N.E. Calm.	1	Faint.	Clear.
11	+ 13·01	+ 16·50	+ 9·00	Variable. Calm.	2	Faint.	Clear blue sky. ♆
12	+ 20·62	+ 23·00	+ 12·00	S.W. Calm.	4		Overcast. Snow.
13	+ 16·90	+ 20·50	+ 12·00	S.W. W.b.S.	5.3		Gloomy. Misty. Snow.
14	+ 7·64	+ 12·00	+ 4·50	W.b.S. N.E.	2.1		Clear. Overcast. The sun rose over the eastern mountain 10^h 35^m A. M.

15	— 2·78	+ 5·50	— 15·00	N.E. S.W.	3.7	Clear.	Variable. Cloudy.
16	+ 8·68	+ 14·00	— 3·00	E.N.E. S.b.W.	6.4	Faint.	Clear.
17	— 10·77	+ 5·00	— 24·00	S.W. N.E. Calm.	10.2	Clear.	Squally. Clear.
18	+ 12·03	+ 20·00	— 2·00	S.W.	7		Overcast. Snow.
19	— 14·29	— 7·00	— 17·50	N.E. E.b.S.	7.4	Faint.	Variable. Misty. Lunar halo. ☽
20	— 18·91	+ 1·00	— 35·50	W. E.N.E.	8.3	Faint.	Clear.
21	— 6·90	+ 6·00	— 22·00	N.E. S.E.	6.5		Overcast. Snow.
22	+ 8·93	+ 13·00	— 00·00	S.W. Calm. East.	5.3	Faint.	Cloudy. Clear.
23	— 2·14	— 0·50	— 3·50	N.E. East.	3.8		Clear. Overcast. Squally.
24	— 8·25	— 3·00	— 12·50	E.b.N. N.E.	4.6		Overcast. Clear. Misty.
25	— 26·22	— 20·00	— 29·00	E. N.E.	2.3	Faint.	Clear blue sky. The sun set behind a hill 2 miles off at $2^h\ 30^m$ P. M.
26	+ 3·16	+ 16·00	— 13·00	N.E. S.W. South.	2.3.7		Cloudy. Gloomy. Snow. ○
27	+ 0·42	+ 15·50	— 12·00	N.E. N.W. North.	7.6.8		Foggy, with snow.
28	— 15·41	— 13·00	— 19·25	North.	9.2		Dark. Foggy. Lunar halo.
29	— 35·53	— 19·00	— 44·50	Calm. W.b.S.	7	Faint.	Clear.
30	— 35·18	— 19·50	— 51·25	N.E. Calm.	5	Clear.	Clear.
31	— 48·20	— 38·20	— 57·50	East. Calm.	2	Clear.	Cloudy. Clear.
Means	— 1·71	+ 5·49	— 9·96				

Abstract of Meteorological Journal for January, 1834, kept at Fort Reliance.

January.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 48·82	— 45·00	— 54·00	Calm.		Faint.	Clear blue sky.
2	— 46·17	— 42·00	— 52·00	E.b.N. Calm.	2	Clear.	Clear. ☾
3	— 13·43	— 8·00	— 38·00	S.W. W.b.N.	6.5	Clear.	Cloudy. Snow. Clear.
4	— 17·03	— 12·00	— 23·50	S.W. N.E.	5.2	Faint.	Clear blue sky.
5	— 5·70	— 2·50	— 10·00	East. Calm.	2	Clear.	Overcast. Snow. Clear.
6	— 26·82	— 17·00	— 37·00	Variable. Calm.	4	Faint.	Partially clear.
7	— 26·80	— 22·50	— 31·00	W.b.N. N.W.	4.2	Clear.	Clear.
8	— 38·08	— 25·50	— 47·00	North. Calm.	3	Faint.	Clear blue sky.
9	— 31·72	— 15·00	— 42·00	Calm. S.W.	5	Faint.	Clear. Misty. Overcast.
10	— 29·39	— 22·00	— 35·50	Variable. Calm.	5	Clear.	Blue sky.
11	— 37·48	— 32·00	— 47·00	Calm.		Clear.	Blue sky. Misty. Parhelia.
12	— 48·08	— 41·00	— 56·25	S.W. Calm.	2	Bright.	Clear. Cloudy. Misty.
13	— 54·75	— 50·00	— 59·50	E.N.E. Calm.	3	Bright.	Clear.
14	— 52·56	— 47·00	— 59·00	Calm.		Clear.	Very clear.
15	— 47·08	— 44·25	— 52·00	East. Calm.	3	Faint.	Clear. (Halo lunar.)
16	— 60·33	— 52·50	— 68·00	Calm.		Bright.	Clear. Misty. (See experiments on ether, &c.)

17	— 54·31	— 45·00	— 70·00	Calm. W.b.S.	5	Faint.	Clear. The ink froze on the pen 4½ feet from a large fire. According to our sensations, this morning was more severe than any preceding one. Thermometer in my room 8°. The smoke of a wax candle in the observatory, at a temperature of 34°, rose in a sooty black column.
18	— 39·63	— 38·00	— 45·00	S.W.	7.2	Faint.	Clear.
19	— 46·47	— 35·00	— 54·00	N.E. Calm.	1	Faint.	Clear.
20	— 29·46	— 22·00	— 50·00	Calm. W. S.W.	3.2	Clear.	Cloudy. Misty.
21	— 42·63	— 36·00	— 49·75	N.E. Calm.	2	Clear.	Clear.
22	— 32·85	— 25·00	— 48·00	Variable. Calm.	5	Faint.	Clear. Lunar halo, angle 22° 15′.
23	— 19·42	— 11.50	— 28·50	S.W. Calm.	7	Faint.	Cloudy. Misty. Clear.
24	— 12·13	— 4·50	— 25·00	N.E. Calm. W.S.W.	5.4		Clear. Overcast. Snow.
25	— 14·56	— 8·00	— 18·00	West. S.W.	2.8		Clear. Gloomy. Misty.
26	+ 16·06	+ 7·00	+ 22·50	S.W. N.W.	9.6		Gloomy. Squally.
27	— 36·03	— 26·00	— 49·25	Calm.		Faint.	Clear.
28	— 44·46	— 38·50	— 53·00	Calm.		Clear.	Clear.
29	— 38·42	— 32·00	— 48·00	W.S.W.	3.8	Clear.	Clear. Overcast.
30	— 35·79	— 24·00	— 54·00	S.W. Calm.	6	Faint.	Clear.
31	— 20·73	— 16·25	— 30·00	S.W. Calm. W.N.W.	6.7	Clear.	Light snow. Clear.
Means	— 33·39	— 26·87	— 39·41				

Abstract of Meteorological Journal for February, 1834, kept at Fort Reliance.

February.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 36·44	— 33·50	— 40.50	West. S.W.	8.2	Bright.	Clear.
2	— 32·41	— 27·50	— 45·00	N.E. Calm.	5		Clear. Overcast.
3	— 44·64	— 40·50	— 49·00	Calm. N.E.	1		Clear. Misty.
4	— 46·80	— 38·00	— 58·00	Calm. N.E.	4	Faint.	Blue sky. Misty.
5	— 30·09	— 25·00	— 35·00	N.E. S. Calm.	3		Variable. Snow. Cloudy.
6	— 12·77	— 8·00	— 29·50	S. Calm. E.	1.6	Faint.	Cloudy. Overcast.
7	— 2·53	+ 3·50	— 8·50	N. E.N.E.	6.8	Faint.	Overcast. Gloomy.
8	+ 7·16	+ 21·00	— 17·50	S.W. N.	5.1	Clear.	Cloudy. Clear.
9	— 27·57	— 15·00	— 38·00	N.W. Calm.	5	Bright.	Clear.
10	— 26·87	— 21·75	— 37·50	S.W. Calm.		Bright.	Clear.
11	— 7·04	+ 2·50	— 19·00	W. N.E. Calm.	3.2	Faint.	Clear. Overcast.
12	+ 7·18	+ 14·00	— 1·00	S.W.	7		Cloudy. Overcast.
13	— 29·47	— 6·00	— 47·00	N.E. Calm.	9	Faint	Misty. Clear.
14	— 28·51	— 17·50	— 46·00	Calm. N.E.	4	Faint	Clear. Distant mountains refracted.

15	— 12·27	— 6·00	— 25·00	S.W. Calm.	1	Faint.	Variable. Snow. Lunar halo.
16	— 3·08	+ 2·50	— 8·00	W.N.W. S.W. Calm.	2.1	Faint.	Clear. Overcast. ☽
17	+ 5·71	+ 11·00	+ 2·00	S.E. Calm. S.	3.1		Clear.
18	— 6·88	+ 2·25	— 18·50	Calm.			Dark. Gloomy.
19	— 23·74	— 11·50	— 41·00	N.E. Calm.	4		Clear.
20	— 28·35	— 19·00	— 41·50	N.E. Calm.			Clear. Misty. Snow. Lunar halo.
21	— 33·75	— 20·50	— 44·00	Calm. N.E.	2		Clear.
22	— 26·02	— 12·00	— 40·50	N.E. Calm.	4		Clear. Parhelia.
23	+ 4·15	+ 8·50	— 6·50	W. S.W.	3.7		Cloudy, then clear. Spiculæ. ☉
24	+ 10·28	+ 25·00	+ 4·00	S.W. N.E.	3.4		Clear. Misty. (Halo lunar.)
25	+ 15·20	+ 23·50	+ 9·00	Variable. Calm.	3		Overcast. Snow.
26	+ 4·13	+ 19·50	— 14·00	W. Calm. N.E.	2.3	Faint.	Clear.
27	+ 3·21	+ 10·50	— 4·00	S.E. E.N.E.	10.9.5		Gloomy. Squally, with whirls of drift. Clear.
28	+ 0·64	+ 8·50	— 8·50	W. Calm. N.E.	3.5	Faint.	Overcast. Clear.
Means	— 14·37	— 5·30	— 26·00				

Abstract of Meteorological Journal for March, 1834, *kept at Fort Reliance.*

March.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	+ 12·57	+ 22·50	— 0·50	Calm. S.E. W.S.W.	4.6		Clear. Overcast. Parhelia. Slight thaw in the sun.
2	+ 27·11	+ 36·50	+ 13·50	Calm. N.E.	7		Clear. Cloudy. Snow. (Snow soft.)
3	+ 0·83	+ 16·00	— 16·00	S.W. W.N.W. N.	4.9.4	Clear.	Gloomy. Heavy drift. Clear.
4	— 13·69	— 5·00	— 27·50	S.W. Calm.	2	Faint.	Clear. Overcast.
5	+ 00·49	+ 5·00	— 14·00	S.W.	7		Overcast. Squally. Drift.
6	— 15·85	+ 4·00	— 40·00	N. Calm.	4	Bright.	Clear.
7	— 32·12	— 20·00	— 45·00	W.b.N. Calm.	5	Clear.	Clear.
8	— 28·37	— 21·00	— 45·00	S.W. Calm.	6	Clear.	Cloudy. Misty.
9	— 9·92	— 2·00	— 20·00	S.W. Calm.	6	Faint.	Overcast. Clear.
10	+ 8·03	+ 16·50	+ 1·00	Calm. S.W.	3		Clear. Overcast.
11	+ 0·95	+ 14·00	— 14·50	Calm. N.E.	2	Clear.	Clear. A soft blue sky. Thaw in the sun.
12	— 1·33	+ 4·00	— 8·00	E. N.E.	3.7	Faint.	Clear blue sky. Drift.
13	+ 2·50	+ 7·50	— 5·00	E.N.E. E.b.S.	7.3		Overcast. Drift.

14	+ 9·09	— 21·50	— 1·00	N.W. N.E. Calm.	2.3	Clear.	Variable. Light Snow. Slight thaw.
15	— 8·20	— 2·00	— 15·00	N. E. Calm.	2.1		Clear. Misty. Overcast. (Spiculæ.)
16	— 13·54	— 8·25	— 24·50	E.b.N. N.E. Calm.	5.3		Cloudy. Snow. Clear.
17	— 25·37	— 13·00	— 45·00	N.E. W.b.S. Calm.	5.2		Very clear.
18	— 16·80	— 3·50	— 40·00	S.W. W. Calm.	4.1	Clear.	Cloudy. Misty.
19	— 17·15	— 2·50	— 39·00	S. Calm.	1	Faint.	Clear. ☽
20	— 0·94	+ 9·50	— 14·00	W. Calm.	5	Faint.	Clear.
21	— 2·05	+ 19·00	— 24·00	Variable. Calm.	2	Faint.	Clear. Hills refracted.
22	— 18·43	— 5·00	— 39·00	N. Calm.	2		Clear.
23	— 7·33	+ 3·50	— 35·00	N.E. Calm.	2		Clear. Lunar halo.
24	+ 9·48	+ 23·00	— 7·00	Calm. E.N.E.	5		Snow. Overcast.
25	— 5·80	+ 16·00	— 29·00	W. N.E. Calm.	3.5		Cloudy. Snow. Clear. ○
26	— 1·37	+ 8·00	— 17·00	S.W. N.	6.7	Clear.	Overcast. Clear. Heavy drift.
27	— 14·48	— 7·00	— 20·00	N.W. Calm. S.W.	7.3	Faint.	Overcast. Clear. Drift.
28	+ 1·15	+ 13·50	— 16·00	S.W. Calm. N.	5.4	Faint.	Cloudy. Misty. Clear.
29	+ 5·02	+ 15·00	— 8·50	Calm. N.E.	5	Clear.	Cloudy. Clear. (Thaw.)
30	— 3·20	+ 6·50	— 18·00	E.N.E.	7	Faint.	Clear. Squally. Drift.
31	— 15·23	— 8·50	— 24·00	E.b.N. N.E.	7.2	Faint.	Clear. Overcast.
Means	— 6·14	+ 3·92	— 20·69				

Abstract of Meteorological Journal for April, 1834, kept at Fort Reliance.

April.	Temperature of the Atmosphe re registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 9·61	+ 2·50	— 24·00	Calm. N.E.	4	Clear.	Clear.
2	+ 14·87	+ 22·50	— 6·00	N.E. E.b.N.	5.2	Clear.	Cloudy. Clear.
3	+ 33·68	+ 51·00	+ 14·00	N.E. Calm. S.W.	2.6	Clear.	Cloudy. Clear. (Brisk thaw.)
4	+ 0·03	+ 11·50	— 12·00	W. Calm. N.E.	3	Faint.	Clear. Overcast.
5	+ 11·16	+ 18·00	+ 2·50	E. Calm.	7	Faint.	Cloudy. Clear.
6	+ 2·24	+ 11·00	— 5·00	N.E. E.b.N.	5.8	Faint.	Clear. Heavy drift. Misty.
7	+ 8·05	+ 13·00	— 3·00	E. Calm.	9		Gloomy. Overcast. Heavy drift.
8	+ 7·34	+ 17·50	— 8·00	W. W.N.W. Calm.	4.8	Faint.	Clear. Overcast. Heavy drift.
9	+ 7·20	+ 29·00	— 14·00	Calm. Variable.	6	Faint.	Clear. Cloudy. Solar halo. Snow.
10	+ 20·06	+ 24·00	+ 13·00	W. Calm.	7	Faint.	Overcast. Heavy drift. Ravens pairing.
11	+ 11·18	+ 28·00	— 2·00	Calm. Variable.	5	Bright.	Clear. Thaw in the sun.

12	+ 8·32	+ 14·50	+ 4·50	E.S.E. E.N.E.	6.8		Snow. Foggy. Gloomy, with much drift.
13	+ 7·37	+ 14·00	+ 2·00	N.E. East.	7.1		Overcast. Drift.
14	+ 9·57	+ 22·00	— 2·50	Calm. N.E.	4	Clear.	Clear. Thaw in the sun.
15	+ 20·72	+ 31·50	+ 5·00	S. N.E. Calm.	2·5	Faint.	Clear.
16	— 0·40	+ 12·00	— 23·00	N. W. Calm.	3.7	Clear.	Cloudy. Misty. Clear.
17	— 7·36	+ 2·00	— 22·00	W. N.E. Calm.	5.6	Clear.	Clear. ☽
18	— 6·93	+ 9·50	— 24·00	N.E. Calm.	5	Bright.	Clear.
19	— 8·23	+ 6·00	— 24·00	Calm. W. N.E.	2	Faint.	Clear refraction. Overcast. Misty.
20	+ 5·02	+ 13·00	— 20·00	N.E. S.E. N.E.	5.9.4		Clear. Cloudy.
21	+ 8·18	+ 20·00	— 15·00	N. N.W. Calm.	3.8		Overcast. Snow. Clear.
22	— 13·48	+ 6·50	— 24·00	N.W. S.W. Calm. N.E.	7.4.2		Clear blue sky.
23	+ 20·38	+ 31·00	— 5·00	Variable. Calm.	2		Clear. ○
24	+ 23·66	+ 27·00	+ 17·00	E. N.E.	2.7	Faint.	Clear and squally.
25	+ 43·23	+ 52·50	+ 33·50	E. S.E. W.S.W.	6.11.5	Bright.	Overcast and clear.
26	+ 12·05	+ 27·00	— 5·00	S.W. W. N.W.	11.10.3	Faint.	Gloomy. Snow. Clear.
27	+ 3·90	+ 12·00	— 9·00	Calm. N.W. N.E.	4.3	Clear.	Clear blue sky.
28	+ 7·46	+ 15·01	— 1·00	East.	7		Clear.
29	+ 6·09	+ 12·50	— 5·50	E. Calm.	7	Faint.	Overcast. Misty.
30	+ 1·17	+ 13·00	— 17·00	E. W. N. Calm.	3	Faint.	Clear. ☾
Means	+ 8·23	+ 18·96	— 5·98				

Abstract of Meteorological Journal for May, 1834, kept at Fort Reliance.

May.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	+ 4·59	+ 15·00	— 11·00	W. W.S.W. Calm.	2.6	Faint.	Clear blue sky.
2	+ 19·13	+ 29·00	00·00	Calm. N.E.	4		Clear blue sky.
3	+ 35·56	+ 45·00	+ 24·00	Calm. N.E.	3		Clear. Overcast.
4	+ 35·59	+ 42·00	+ 28·00	E.N.E.	4		Clear. Smart thaw.
5	+ 33·31	+ 39·50	+ 28·00	E. N.E.	2.5		Clear. Overcast.
6	+ 33·42	+ 39·00	+ 25·00	East.	5		Clear.
7	+ 32·92	+ 41·50	+ 23·00	Calm. E.N.E.	5		Blue sky. Clear.
8	+ 23·09	+ 33·00	+ 13·00	E. N.E.	4.6		Overcast. Clear. Willows beginning to bud.
9	+ 14·61	+ 19·00	+ 1·50	East.	7.3		Clear and squally.
10	+ 19·58	+ 27·50	+ 8·00	Calm. East.	2		Blue sky. Clear.
11	+ 29·21	+ 38·00	+ 14·00	East. N.E.	5.4		Clear.
12	+ 37·07	+ 44·00	+ 23·00	E.S.E.	6		Clear. Misty.
13	+ 45·85	+ 56·00	+ 34·00	E. S.E. S.W.	3.7.1		Overcast. Clear. A goose flew past the Fort.

14	+ 39·98	+ 49·00	+ 27·00	W. S.W. W.N.W.	1.4.6		Clear blue sky. Gulls, small birds, and flies seen.
15	+ 31·47	+ 39·00	+ 23·50	Variable. Calm.	2		Clear. Butterfly and orioles seen.
16	+ 37·09	+ 49·00	+ 29·50	E. E.b.N.	1.6		Clear. Overcast.
17	+ 24·71	+ 30·00	+ 8·50	N.E. Calm.	6		Gloomy. Clear.
18	+ 27·77	+ 34·00	+ 14·00	W.S.W. Calm.	4		Clear. Overcast.
19	+ 32·44	+ 39·50	+ 24·00	West. N.E.	5.2		Overcast. Snow.
20	+ 39·74	+ 46·00	+ 32·00	E. Calm.	6		Clear blue sky.
21	+ 49·76	+ 56·00	+ 39·50	S.E. N.E.	6.3		Clear. Gloomy.
22	+ 43·69	+ 54·00	+ 34·50	East.	6.10		Gloomy, with hard squalls.
23	+ 31·53	+ 35·50	+ 27·00	East.	9.6		Gloomy, with squalls.
24	+ 35·18	+ 40·00	+ 28·00	E.b.N. Calm.	4		Overcast.
25	+ 44·54	+ 57·00	+ 33·50	N.E. S.E.	2		Overcast. Clear.
26	+ 47·67	+ 56·00	+ 38·00	E. N.W. E.	4.2		Clear blue sky.
27	+ 58·69	+ 68·50	+ 43·00	Variable. Calm.	4		Clear. Moschetoes seen.
28	+ 61·36	+ 81·00	+ 41·00	Calm. E.N.E.	7		Clear. Squally.
29	+ 42·99	+ 49·00	+ 33·00	East.	10		Clear. Gloomy.
30	+ 44·83	+ 52·00	+ 37·00	E. E.S.E.	9.6		Squally. Clear.
31	+ 59·85	+ 72·00	+ 47·00	S.E. Calm.	5		Clear blue sky.
Means	+ 36·03	+ 44·38	+ 24·82				

Abstract of Meteorological Journal for October, 1834, kept at Fort Reliance.

October.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

17							
18							
19							
20							
21							
22	— 1·28	+ 4·50	+ 7·50	East.	6.2	Clear.	Misty. Blue sky.
23	+ 9·91	+ 15·00	— 4·50	E. S.	3.7		Overcast. Snow.
24	+ 16·06	+ 22·00	+ 11·50	E.N.E.	3		Overcast. Clear. (Bay in front of the house frozen.)
25	+ 21·49	+ 29·50	+ 16·50	South. S.E.	2.4		Misty. Clear.
26	+ 16·47	+ 26·00	+ 9·00	Calm. E.	5	Faint.	Blue sky.
27	+ 23·77	+ 29·00	+ 10·00	E.b.S.	6	Faint.	Gloomy. Overcast.
28	+ 22·95	+ 26·00	+ 18·00	E. S. Calm.	1.3		Overcast. Snow.
29	+ 31·05	+ 34·00	+ 24·00	E.N.E. Calm. E.	3		Gloomy. Misty.
30	+ 33·74	+ 35·50	+ 31·00	East.	7		Squally, with snow.
31	+ 32·89	+ 34·00	+ 32·00	S.W.	8		Dark, and very squally.
Means	+ 20·70	+ 25·50	+ 14·00				

Abstract of Meteorological Journal for November, 1834, kept at Fort Reliance.

November.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	+ 29·58	+ 31·50	+ 27·00	S.E. Calm. S.W.	3.6		Clear. Gloomy.
2	+ 25·77	+ 27·00	+ 24·00	West.	8		Gloomy, with squalls. Snow-drift.
3	+ 19·61	+ 23·00	+ 13·50	W. N. Calm.	8.2	Bright.	Overcast. Snow. Clear.
4	+ 19·21	+ 30·50	+ 10·00	E.N.E. Calm. S.W.	2.7	Clear.	Clear blue sky.
5	+ 21·07	28·00	+ 14·50	S.W. N.W. N.	6.3.4		Gloomy.
6	+ 8·16	+ 14·00	+ 2·00	East.	3	Faint.	Clear. Overcast.
7	+ 26·20	+ 31·00	+ 21·00	N. Calm. S.W.	2.6	Bright.	Overcast. Clear.
8	+ 24·32	+ 30·50	+ 14·50	W.b.N. N.	7		Gloomy, with snow.
9	+ 15·10	+ 18·25	+ 11·75	N.E. Calm. N.W.	4.3		Overcast. Snow.
10	+ 2·87	+ 14·00	— 6·50	N.B.W. Calm. N.b.E.	2.1	Faint.	Clear. Misty.
11	— 10·40	— 1·50	— 19·00	N.E. Calm.	4	Clear.	Blue sky.
12	— 16·44	— 8·00	— 24·00	Calm. E. Calm.	3	Clear.	Clear. Bay entirely frozen over to the outer point.

13	— 10·65	— 7·50	— 18·50	East. Calm. East.	5.4	Clear.	Clear blue sky.
14	— 1·42	+ 12·00	— 9·00	N.E. Calm. S.W.	3.5		Clear. Cloudy. Misty.
15	+ 17·25	+ 23·00	+ 12·00	S.W. Calm. S.W.	5.2		Gloomy. Misty.
16	+ 22·68	+ 25·50	+ 20·00	Calm. S.W.	2		Variable. Clear.
17	+ 23·84	+ 26·00	+ 22·00	Calm. E.	6		Gloomy. Snow.
18	+ 16·27	+ 19·50	+ 13·00	E.N.E.	5		Clear.
19	+ 24·94	+ 26·00	+ 22·00	E. S.E. Calm.	4.5	Faint.	Overcast. Misty.
20	+ 19·29	+ 26·50	+ 9·00	S.W. S.E.	3.2	Clear.	Gloomy Clear.
21	+ 18·40	+ 25·00	+ 13·25	Calm. N.E. S.W.	3.6	Brilliant.	Clear.
22	+ 19·45	+ 24·00	+ 13·00	S.W. N.E.	6.4		Clear. Misty.
23	+ 8·40	+ 14·25	00·00	East. S.W.	2.5	Bright.	Foggy. Gloomy.
24	+ 10·58	+ 24·00	+ 4·00	E.N.E. Calm. S.W.	2.5		Overcast.
25	+ 18·72	+ 23·50	+ 14·50	S.W.	3.6	Faint.	Clear. Overcast.
26	+ 11·68	+ 14.00	+ 7·50	E.N.E. Calm.	5		Gloomy, with snow.
27	+ 9·43	+ 14·75	+ 3·50	Calm.	0	Faint.	Foggy. Clear.
28	+ 8·27	+ 13·75	+ 1·50	S.W. N.E. N.N.W.	5.7.2	Clear.	Variable. Snow. Clear.
29	+ 5·35	+ 8·00	+ 3·75	Calm. S.W. Calm.	2		Overcast.
30	— 25·80	— 17·50	— 32·00	East. Calm. S.W.	2.7		Clear. Overcast. (Eclipse of sun.)
Means	+ 12·05	+ 17·78	— 6·27				

Abstract of Meteorological Journal for December, 1834, kept at Fort Reliance.

December.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 18·82	— 13·00	— 30·00	N.W. Calm.	1	Clear.	Overcast. Calm.
2	— 41·15	— 35·00	— 47·00	Calm.		Clear.	Blue sky.
3	— 30·86	— 24·00	— 40·00	Calm. W. Calm.	7	Bright.	Misty. Clear.
4	— 43·24	— 39·00	— 48·50	Calm.		Bright.	Clear.
5	— 38·30	— 24·00	— 51·00	Calm. S.W.	8	Faint.	Clear. Overcast. Squally.
6	— 18·26	— 14·00	— 28·50	S.W. Calm.	9	Clear.	Gloomy. Squally. Clear.
7	— 37·97	— 33·00	— 42·00	Calm. East.	1	Faint.	Clear.
8	— 26·75	— 21·00	— 38·00	East. Calm.	4	Clear.	Misty. Clear. ☽
9	— 9·52	— 4·00	— 20·00	E. N.E. Calm.	2	Bright.	Overcast. Snow. Clear.
10	+ 7·27	+ 22·00	— 20·00	N.E. Calm. S.W.	3.6	Faint.	Snow. Clear.
11	— 10·82	— 1·00	— 17·00	North. N.E.	5.1		Clear blue sky.
12	— 26·00	— 15·00	— 50·50	Variable. Calm.	1	Clear.	Clear.
13	— 16·57	— 10·00	— 42·00	N.E. W.N.W.	2.6		Gloomy. Snow.
14	— 29·25	— 12·00	— 42·00	E. N.b.W. Calm.	2.6	Faint.	Cloudy. Clear.
15	— 53·91	— 51·50	— 55·50	Calm.		Faint.	Misty. Clear. (Moon partly eclipsed.) ☽

16	— 35·88	— 28·00	— 45·00	W. Calm. S.W.	2.7	Faint.	Overcast. Clear.
17	— 26·21	— 22·00	— 33·00	S.W.	9		Misty. Hard squalls. Halo.
18	— 27·88	— 22·00	— 33·00	W.N.W. W.	9.7	Faint.	Squally. Clear. Heavy drift.
19	— 37·99	— 33·50	— 43·00	Calm. W.S.W. Calm.	6	Faint.	Foggy. Clear. (Moon rose due North.)
20	— 48·58	— 42·50	— 52·50	S.W. Calm.	1	Clear.	Clear blue sky.
21	— 40·25	— 33·50	— 52·00	Calm. S.W. Calm.	7	Brilliant.	Foggy. Clear. (Sun first visible above the hill, at $10^h\ 14^m$ A.M.)
22	— 50·60	— 46·00	— 54·00	Calm.		Bright.	Blue sky. Misty. (Sun's altitude at noon 3° 10′.)
23	— 55·52	— 50·50	— 58·00	Calm.		Clear.	Blue sky. Misty. ☾
24	— 31·74	— 28·00	— 46·00	N.E. East.	4.6	Clear.	Cloudy. Overcast.
25	— 37·14	— 33·00	— 40·00	E.N.E.	5	Faint.	Cloudy.
26	— 28·55	— 24·00	— 33·00	East. Calm.	5	Clear.	Overcast. Snow. Clear.
27	— 27·14	— 24·00	— 33·00	E.b.N.	6	Faint.	Foggy. Overcast.
28	— 34·16	— 24·50	— 43·00	Calm. N.E. Calm.	4	Faint.	Cloudy. Misty. Clear.
29	— 50·04	— 43·50	— 54·00	Calm. N.E.	5	Faint.	Blue sky. Misty.
30	— 36·17	— 33·50	— 42·00	East.	5	Faint.	Blue sky. Cloudy.
31	— 43·52	— 42·00	— 45·00	Calm. N.E.	3	Faint.	Clear.
Means	— 32·43	— 25·96	— 41·24				

Abstract of Meteorological Journal for January, 1835, kept at Fort Reliance.

January.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 36·07	— 26·00	— 44·00	N.E. Calm.	3	Clear.	Clear.
2	— 18·09	— 13·50	— 22·00	Variable. Calm.	2	Clear.	Blue sky.
3	— 21·57	— 17·00	— 27·00	Variable. Calm.	2	Clear.	Blue sky. Clear.
4	— 21·91	— 15·50	— 27·00	East.	6	Faint.	Clear. Overcast.
5	— 12·26	— 9·50	— 16·00	South. Calm.	2		Gloomy. Overcast.
6	— 13·91	— 10·00	— 15·25	Calm. E.b.S.	5	Faint.	Overcast. Misty.
7	— 21·37	— 17·00	— 24·50	Calm. E.N.E.	6		Overcast. Hazy. Halo. Snow-drift.
8	— 9·55	— 7·00	— 12·00	East.	10.3		Overcast. Variable. Gloomy. Drift.
9	— 4·75	— 2·50	— 8·00	Calm. N.E.	1		Overcast.
10	— 21·15	— 6·00	— 26·00	Calm. N.N.E.	7	Faint.	Cloudy. Hazy. Halo.
11	— 18·22	— 12·00	— 22·00	E.N.E.	8		Hard squalls, and hazy. Drift. (Kite sent up.)
12	— 3·89	— 2·50	— 9·00	East.	6		Overcast and gloomy, with drift.
13	— 0·80	+ 1·75	— 3·25	E. Calm. S.W.	2.3		Overcast. Snow. Gloomy.
14	— 12·88	— 4·00	— 31·25	S.W. Calm.	5	Faint.	Clear. Cloudy.
15	— 20·94	— 14·00	— 28·50	Calm. Variable. Calm.	2	Faint.	Snow. Variable. Cloudy.
16	— 14·89	— 8·75	— 25·00	Calm. N.E.	5	Faint.	Blue sky.
17	— 6·45	— 3·50	— 11·00	Calm. E.N.E.	7		Overcast. Misty. Snow.

18	— 15·75	— 7·00	— 27·00	S.W. E.N.E.	4.5	Clear.	Gloomy. Misty. Beautiful lunar halo, with penaselenæ.
19	— 13·90	— 6·00	— 21·00	E.N.E. Calm.	6		Clear. Overcast. Perhelion.
20	— 4·71	— 1·75	— 11·00	Calm.			Clear. Variable.
21	— 5·74	— 5·00	— 8·75	Calm.			Clear. Overcast. ☾
22	— 7·24	— 6·00	— 9·50	S.W. S.E.	4.2		Misty. Overcast. Trees covered with hoar frost.
23	— 4·86	— 1·00	— 9·00	Calm. N.E. Calm.	2	Clear.	Cloudy. Clear. Hoar frost.
24	— 5·96	— 2·10	— 10·00	E.N.E.	8	Clear.	Cloudy. Squally, with drift.
25	— 17·77	— 15·00	— 20·00	E.b.N. E.	9	Faint.	Hard squalls, with whirls of drift.
26	— 25·10	— 22·00	— 27·50	N.E.	7	Faint.	Clear. Overcast. Drift.
27	— 23·20	— 20·75	— 26·00	East.	7	Clear.	Snow. Misty.
28	— 28·27	— 23·50	— 34·00	E.b.N. Calm.	3	Bright.	Clear blue sky.
29	— 24·88	— 22·00	— 32·00	N.E.	5	Clear.	Cloudy.
30	— 35·23	— 30·00	— 40·00	East.	7	Faint.	Blue sky.
31	— 44·03	— 38·00	— 51·00	N.E. Calm.	3	Clear.	Misty.
Means	— 16·62	— 11·84	— 21·88				

Abstract of Meteorological Journal for February, 1834, kept at Fort Reliance.

February.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 46·47	— 36·50	— 53·00	Calm. N.E.	3	Brilliant.	Blue sky.
2	— 36·03	— 27·00	— 52·00	Calm. West. N.W.	6	Faint.	Clear. Overcast. Misty. Hills refracted.
3	— 26·27	— 23·00	— 32·50	W.S.W. S.W.	9	Faint.	Blue sky. Misty. Parhelia.
4	— 17·32	— 11·00	— 29·00	Calm. N.b.W. Calm.	3	Clear.	Blue sky. Solar halo.
5	— 26·79	— 17·50	— 40·00	Calm. E.N.E.	4		Overcast. Cloudy. Lunar halo.
6	+ 4·78	+ 9·50	— 3·00	S.b.W.	8	Faint.	Snow. Variable. Drift. Halo.
7	+ 3·73	+ 12·50	— 8·00	Calm. N.E.	7		Cloudy and squally. Drift.
8	— 15·62	— 9·00	— 28·00	Calm. East. Calm.	2	Faint.	Cloudy.
9	+ 7·40	+ 11·50	+ 1·50	N.W. Calm.	5		Overcast.
10	— 1·30	+ 6·00	— 7·50	Calm. N.E. Calm.	3		Overcast.
11	— 2·48	+ 7·50	— 15·00	E.N.E. Calm.	6		Cloudy.
12	— 19·29	— 6·00	— 30·50	North. Calm.	4		Cloudy. Misty. (The fall heard distinctly.)

13	— 7·80	— 2·00	— 20·00	Variable.	5.2		Cloudy. Clear.
14	— 24·86	— 13·00	— 42·50	S.W. W.N.W. Calm.	5	Faint.	Overcast. Clear. (A cloud like the Aurora at E.B.S.)
15	— 40·68	— 33·00	— 51·50	W. Calm.	4	Faint.	Blue sky.
16	— 43·05	— 30·00	— 55·50	N.W. Calm.	3	Clear.	Blue sky.
17	— 29·68	— 21·00	— 44·00	Calm. W.S.W. N.E.	5.3	Faint.	Clear. Overcast. Snow.
18	— 35·22	— 28·00	— 44·00	Calm. W. Calm.	6	Clear.	Clear blue sky.
19	— 30·41	— 27·00	— 39·00	W. S.W.	6.8	Faint.	Squally. Misty. (Hills refracted.)
20	— 33·20	— 23·00	— 48·25	S.W. Calm. E.N.E.	2	Clear.	Blue sky. Hazy.
21	— 44·64	— 38·00	— 56·00	Calm. West.	5	Faint.	Clear. (The water from the river overflows.)
22	— 35·01	— 27·00	— 45·50	S.W. Calm. West.	6	Clear.	Blue sky. Misty.
23	— 43·85	— 29·75	— 55·75	Calm. N.E. Calm.	6	Faint.	Clear. (Dense mist over the river.) Cold sensation.
24	— 35·31	— 27·25	— 48·00	Variable. Calm.	5	Faint.	Misty. Clear. (Fall very distinctly heard.)
25	— 18·27	— 8·00	— 43·50	W. N.W. Calm.	2.5	Faint.	Cloudy. Overcast. Clear. Parhelia.
26	— 15·63	— 7·00	— 35·00	Calm. W.N.W. Calm.	6	Bright.	Clear.
27	— 25·33	— 12·00	— 39·00	Calm. W.S.W. Calm.	5	Clear.	Blue sky.
28	— 14·60	— 5·00	— 29·00	Calm. Variable. Calm.	3	Faint.	Misty.
Means	— 23·32	— 14·78	— 35·53				

Abstract of Meteorological Journal for March, 1835, *kept at Fort Reliance.*

March.	Temperature of the Atmosphere, registered 15 Times in the 24 Hours.			Prevailing Winds.			Prevailing Weather, and other Remarks.
Day of.	Mean.	Highest.	Lowest.	Direction.	Force.	Aurora visible.	
1	— 19·43	— 7·50	— 34·50	Calm. N.W. Calm.	4	Clear	Clear blue sky.
2	— 6·35	+ 4·00	— 35·00	Calm. S.W.	6		Cloudy. Overcast. (River overflowing its banks.)
3	— 12·40	— 9·00	— 23.00	Calm. W.b.N.	7	Clear.	Cloudy. Drift.
4	— 29·66	— 18·00	— 43·50	Variable. Calm	5	Clear.	Clear blue sky.
5	— 26·75	— 16·50	— 44·00	Calm. N.E.	4	Faint.	Clear. Hazy.
6	+ 1·43	+ 14·00	— 8·00	Variable. Calm.	5	Faint.	Snow. Overcast.
7	— 12·48	— 5·00	— 20·00	N.E.	7		Cloudy. Squally. Hazy. Drift.
8	+ 3·08	+ 12·00	— 9·00	N.E. Calm. E.b.N.	2·8		Overcast. Snow. Squally. Drift.
9	+ 8·99	+ 13·00	+ 6·00	E. N.E.	10		Overcast. Misty. Squally. Heavy drift.
10	+ 1·15	+ 9·50	— 9·00	Calm. S.W. W.	3·9		Overcast. Squally.
11	— 7·44	— 3·50	— 19·00	Calm. N.E. Calm.	7		Cloudy and misty. Drift.
12	— 16·38	+ 5·00	— 35·00	W. N.E. Calm.	2·7		Snow. Cloudy.
13	— 28·98	— 18·00	— 40·00	Variable. Calm. N.E.	5		Clear blue sky.

14	— 28·41	— 22·00	— 38·00	E. N.E.	3·7	Faint.	Clear and squally, with drift.
15	— 28·84	— 16·50	— 40·00	Calm. E.N.E.	5	Faint.	Clear blue sky.
16	— 21·38	— 14·50	— 28·00	E.	8	Clear.	Overcast. Clear. Drift.
17	— 24·25	— 15·00	— 34·00	E. N.E.	4·5	Faint.	Clear blue sky.
18	— 18·16	— 8·00	— 26·00	Calm. N.E.	2	Faint.	Clear blue sky. (Hills refracted.)
Means	— 14·79	— 5·55	— 26·66				

Total observations for Temperature 5400.

No. VI.

CONTAINING THE TEMPERATURE OF ANIMALS, BIRDS, FISH, TREES, AND EARTH, AT DIFFERENT TIMES AND PLACES.

Made and arranged by Mr. King.

Month.	Day.	Hour.	Sun.	Wind.	Subject.	Therm. where placed.	Distance from Water. — Age.	Sex.	Habitat.	Temp. of Subject.	Temp. of surrounding Element.
1833.										+	+
October	25	Noon.	Obs.	N.E. 2.	Fir-tree, 13 in. diameter.	Centre.			Slave Lake	32	12
										+	+
"	"	"	"	"	Earth of sand 1 foot.		300 paces.		"	28	12
										+	+
"	26	1 P.M.	"	N.N.W. 3.	Wood partridge.	Chest.		Male.	"	110	9
										+	+
"	27	Noon.	"	N.N.W. 2.	Tom-tit.	"		"	"	100	16
										+	+
"	28	11 A.M.	Clear.	E. 1.	Wood partridge.	"		"	"	109½	5
										+	+
"	29	3 P.M.	Obs.	E. 3.	Wood partridge.	"		Hen.	"	109	17
										+	+
"	"	"	"	"	Wood partridge.	"		"	"	110	17
										+	+
Novem.	4	10 A.M.	"	b.S. 2.	Trout.	Abdomen.			"	36	31
1834.										+	—
January	5	1 P.M.	"	0	White partridge.	Chest.		"	"	108½	3½
										+	—
"	7	2 P.M.	Clear.	N.W. 4.	Red pole.	"		Male.	"	99	27

"	"	"	"	"	White partridge.	"		"	"	+ 110	− 27
"	11	"	Obs.	0	White partridge.	"		"	"	+ 110	− 32½
"	21	"	Clear.	N.E. 1.	Ptarmigan.	"		Hen.	"	+ 106½	− 41
April	2	1 P.M.	Bright	E. 5.	Squirrel.	"		Male.	"	+ 102	+ 19
May	11	"	Clear.	E. 2.	Fir of 9 in. diam.	Centre.			"	+ 34	+ 40
"	"	"	"	"	Birch of 5 in. diam.	"			"	+ 32	+ 34½
"	12	10 A.M.	"	0	Fir { The same borings as yesterday. Holes had }	"			"	+ 33	+ 39
"	"	"	"	"	Birch { been kept well stopped. }	"			"	+ 31	+ 39
"	"	12 A.M.	"	E.b.S. 3.	Fir of 4½ in. diam.	"			"	+ 33½	+ 41½
"	"	"	"	"	Birch of 4 in. diam.	"			"	+ 33	+ 42
"	13	"	"	S.E. 2.	Fir of 3 in. diam.	"			"	+ 61	+ 55
"	"	"	"	S.E. 2.	Birch of 2½ in. diam.	"			"	+ 55	+ 55
"	"	"	"	"	Shrubby birch.				"	+ 64½	+ 53

Temperature of Animals, &c. (continued.)

Month.	Day.	Hour.	Sun.	Wind.	Subject.	Therm. where placed.	Distance from Water. — Age.	Sex.	Habitat.	Temp. of Subject.	Temp. of surrounding Element.
1834.										+	+
May	14	12 A.M.	Clear.	W. 3.	Fir of 4 in. diam.	Centre.			Slave Lake	57½	52
"	"	"	"	"	Birch of 2 in. diam.	"			"	+ 52	+ 49
"	"	"	"	"	Shrubby birch.				"	+ 63½	+ 51½
"	15	"	"	N. 2.	Fir of 3½ in. diam.	"			"	+ 33	+ 30
"	"	"	"	"	Birch of 2 in. diam.	"			"	+ 34	+ 30
"	"	"	"	"	Shrubby Birch.				"	+ 40	+ 31
"	16	"	Dim.	E. 4.	Fir of 4 in. diam.	"			"	+ 48½	+ 48½
"	"	"	"	"	Birch of 2½ in. diam.	"			"	+ 43	+ 48
"	"	"	"	"	Shrubby birch.				"	+ 63	+ 61
"	17	2 P.M.	Clear.	N. 3.	Squirrel.	Chest.		Female.	"	+ 102	+ 27

											+	+
"	18	1 P.M.	"	W.S.W. 2.	Wood partridge.	"		Hen.	Slave Lake	109	+	30
"	20	10 A.M.	"	N.E. 2.	Trout.	Abdomen.			"	34	+	32
"	29	11 A.M.	"	E. 9.	White fish.	"			"	43	+	37
August	3	4 P.M.	"		Earth of sand.	Surface.	1 mile.		Sea coast.	47	+	60
"	"	"	"		Earth of sand.	2 feet.	"		"	37	+	60
"	"	6 P.M.	"		Sand piper.	Chest.		"	"	107	+	60
"	4	Noon.	"		Earth of sand.	Surface.	200 paces.		"	60	+	56
"	"	5 P.M.	"		Earth of sand.	"	1 mile.		"	48	+	53
"	"	"	"		Earth of sand.	2 feet.	"		"	38	+	53
"	"	6 P.M.			Brown diver.	Chest.		"	"	106½	+	50
"	"	"			Northern diver.	"	1 week.		"	95	+	50
"	"	"			Northern diver.	"	"		"	93	+	50
"	7	1 P.M.			Earth of sand.	Surface.	500 paces.		"	60	+	54

Temperature of Animals, &c. (continued.)

Month.	Day.	Hour.	Sun.	Wind.	Subject.	Therm. where placed.	Distance from Water. — Age.	Sex.	Habitat.	Temp. of Subject.	Temp. of surrounding Element.
1834.										+	+
August	7	1 P.M.	Clear.		Earth of sand.	1 foot.	500 paces.		Sea coast.	34	54
"	11	3 P.M.	Obs.		Musk-ox.	Through ball wound, blood oozing from heart.	1 year.	Bull.	"	+ 104	+ 41
"	"	5 P.M.	"		Lemming.	Chest.	1 month.	Female.	"	+ 93	+ 39

No. VII.

ON THE AURORA BOREALIS.

The observations on this phenomenon were made, without interruption, during six months in the years 1833-34, and five months in the years 1834-35; but, as their entire insertion would occupy too much space here, I have selected chiefly the instances possessing the greatest interest from the effect produced by them on the needle, and from the brilliancy and eccentric motions of the coruscations. That the needle was constantly affected by the appearance of the aurora, seems evident from the facts thus stated; and, on one occasion, indeed, this effect exceeded eight degrees. I abstain, however, from drawing any inferences on this subject; and merely note down carefully, and with as much precision as possible, the whole of the phenomena.

Brilliant and active coruscations of the aurora borealis, when seen through a hazy atmosphere, and exhibiting the prismatic colours, almost invariably affected the needle. On the contrary, a very bright aurora, though attended by motion, and even tinged with a dullish red or yellow, in a clear blue sky, seldom produced any sensible change, beyond, at the most, a tremulous motion.

A dense haze or fog, in conjunction with an active aurora, seemed uniformly favourable to the disturbance of the needle; and a low temperature was favourable to brilliant and active coruscations. On no occasion,

during two winters, was any sound heard to accompany the motions.

The aurora was frequently seen at twilight; and as often to the eastward as to the westward. Clouds, also, were often perceived in the day-time, in form and disposition very much resembling the aurora.

The observations are set down just as they were taken. I read off the arc of the needle, and Mr. King remained on the outside of the observatory, to inform me of the changes in the coruscations. The height of the arches was estimated by the eye; and their bearing by reference to the houses and other marks which had been previously determined. The bearings are reckoned from the magnetic meridian.

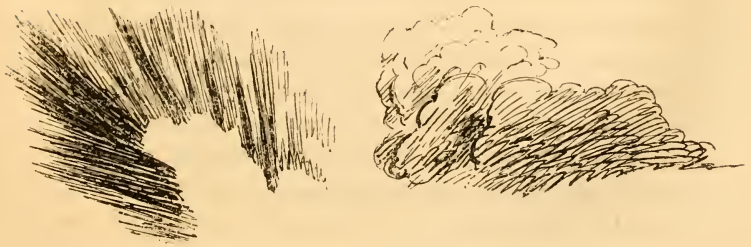
Rough Notes on the Aurora.

October 27th, 1833. — The needle evinced no particular agitation throughout the day, except the same tremulous motion it displayed occasionally night and day. At midnight the weather changed from an overcast to a blue and cloudy sky. The moon was clear, and the coruscations streamed in beams in the direction of the dipping needle, and formed an undulating fringed arch, from a horse-shoe shaped mass, at N.N.W., 10° high to 70° northerly. This was met by two bright beams, which issued from E.N.E., 15° high. On entering the observatory I found the needle vibrating, and on the approach of the fringed arch towards the zenith, it immediately attained to 1° 0′ W., and before Mr. King had informed me that beams were darting from the eastward, it had already begun to recede, and fixed at 1° 0′ E.; afterwards, on the apparent motion of the

aurora ceasing, and the coruscations becoming faint, it settled at 0° 30′ E.

October 28th. — At 8ʰ A. M. the needle was at 1° 20′ E. At 9ʰ I found it at 2° 20′ E.: saw it move to 2° 50′ E., and being something surprised, I went out to endeavour to trace some cause for such a deviation. There was not, however, the least vestige of a cloud, the sky being of an indigo colour at the zenith, and becoming fainter in tone till it mingled in a pale yellow near the horizon. The sun was very bright, about 10° high, and bore E. ½ S. (m.) * The thermometer on the north side of the observatory was −4½°, that on the south, exposed to the sun's rays, was +4½°: the weather calm.

At 10ʰ A. M. the needle was agitated at 1° 30′ E.; at 11ʰ I found it also at 1° 30′ E., but in motion, which took it to 2° 0′ E., then to 0° 20′ E., to 0° 20 W., where it remained ten seconds, and repassed to 0° 40′ E., to 0° 0, 0° 10 E., to 0° 30′ E., 0° 20′ E., to 1° 0′ E., 1° 40′ E., and 0° 25′ E.: when, seeming to be stationary, I went out, and placing myself in the shade of a fir tree of thirty feet high, looked directly to the zenith and to the westward (the sun being too bright to look to the eastward), when there appeared a very faint and filmy arch of pale white, that issued from a mass of white cloud precisely similar in shape to the horse-shoe mass of aurora of last night in the same place; and on watch-



* All the bearings are magnetic.

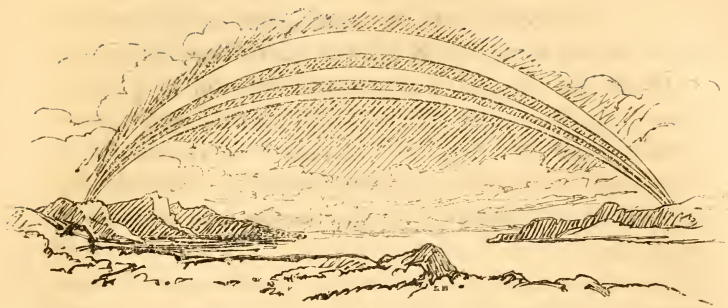
ing more attentively, I could see a very pale yellow arch rising from the same mass, and extending southerly to S.E. by S., at an angle of 30°. Afterwards, several detached *radial* clouds became visible, and more than once I thought they differed much in brightness in the same point.

On first seeing the needle move, it occurred to me that, though distant from it fifteen inches, the steel in the works of the two chronometers might possibly be the cause; but on my remaining motionless for ten minutes, it went through the vibrations mentioned above.

At noon it was still considerably agitated, but steadily, not jerking, and with the most gentle motion it went from 1° 0′ E., to 0° 20′ W., and settled at 0° 0′. There were now many more clouds of the same pale white filmy form; the whole of them coming from the same mass at W. N. W., while the wind, it may be remarked, was E. b. S.

Not being satisfied respecting the chronometers, I left them, together with my braces (which had a small polished buckle on each), in my tent, and at 1^h P. M. found the needle tolerably steady at 0° 10′ E.; but while I was looking, it moved to 0° 30′ E., to 0° 10′ E., to 0° 0′, and I left it at 0° 30′ E.

The weather was fine, the sun less bright than in the earlier part of the day, and the white clouds had become of a more yellowish tint, and diffused in three arches not unlike a common form of exhausted aurora, or that appearance it assumes sometimes after very rapid motion. At 2^h P. M., having the chronometers on as usual, I found the needle steady at 0° 18′ E. The sun was less clear, and the thermometer descending. Clouds white, generally diffused.



At 8^h P.M. it altered from 0° 5′ E. to 0° 10′ E., and was tremulous.

At 4^h it was steady at 0° 10′ E. Thermometer in the air 0°, and in the observatory $+15\frac{1}{4}°$; weather fine with light clouds, much the same as those already described. At 6^h a beam rose from the W.N.W., and shot up towards the zenith, when the needle moved from 0° 2′ W. to 0° 30′ W.

December 6th. — The weather had been overcast all day, with snow, and a strong breeze from S. W. Thermometer from $+13\frac{1}{2}°$ to $+9°$, when at 7^h P.M it became calm, and the thermometer immediately fell to $-1°$.

At midnight there was a light air from E., a clear sky, and the aurora was generally diffused. The thermometer had fallen to $-11°$, and on examination the needle was vibrating from 0° 25′ W. A mass of aurora appeared at E., and it moved to 0° 40′ E., 0° 20′ E., 0° 42′ E., and became stationary at 35′ and 40′ E. Some beams darted up from W., and the needle returned to 0° 5′ E. The aurora was then generally diffused, and rather faint, when the marked end remained at 0° 0′.

A beam at N. E. caused it to move 0° 10′ E., where it stood a few seconds, but on some more beams uniting, so as to form a mass at N. E., the needle directly moved to 0° 20′ E. Again, the mass was diffused in a filmy form from E. to W. b. S. and the marked end retrograded to 0° 0′. Another change to a concentrated mass at E. N. E. took it from 35′ to 48′ E. The aurora again became spread, and the needle was stationary at 0° 0′.

December 12th. — At 10^h P. M. the weather was gloomy, overcast, and calm, but from the unusual brightness at a time of new moon, and the distinctness with which objects appeared, there was every reason to suppose the aurora was then very brilliant above the clouds. On entering the observatory I saw the needle vibrating rapidly to the westward, and having taken the time, 16^h 37^m 0^s, chronometer number 1., I watched it move from 0° 10′ E. to 3° 20′ W., to 10′ E. to 2° 50′ W., to 0° 40′ W., to 3° 55′ W., to 0° 8′ E., to 2° 30′ W., to 20′ E., to 2° 30′ W., to 0° 08′ E., to 2° 30′ W., to 0° 40′ W., to 2° 50′ W., to 1° 20′ W., to 2° 20′ W., to 1° 10′ W., to 2° 42′ W., to 1° 55′ W., to 2° 58′ W., to 1° 58′ W., to 3° 10′ W., to 2° 5′ W., to 3 00′ W., to 2° 50′ W., to 3° 20′ W., to 2° 8′ W., to 2° 30′ W., to 1° 35′ W., where it remained stationary five seconds, and vibrated quickly to 1° 28′ W., to 2° 10′ W., to 1° 45′ W., to 1° 58′, to 1° 05′ W., to 1° 10′ W., to 0° 40′ W., to 0° 55′ W., to 0° 18′ E., to 0° 20′ E., where it again became stationary only seven seconds, then moved slowly to 00° 00′, still slower to 0° 20′ W., to 00° 00′, to 0° 15′ W., to 0° 10′ E., to 00° 00′, to 0° 12′ E., to 0° 12′ W., to 0° 5′ W., and quicker to 0° 48′ W., to 1° 12′ W., to 1° 05′ W., at which point it was steady three seconds, when it moved

to 0° 58′ W., to 1° 28′ W., to 1° 08′ W., to 1° 28′ W., to 1° 08′ W., to 1° 28′ W., to 1° 08′ W., to 1° 15′ W., to 0° 58′ W., to 1° 08′ W., to 0° 58′ W., to 1° 00′, where it remained stationary at 16^h 52^m 00^s, making an interval of fifteen minutes. I remained there a quarter of an hour longer, and it vibrated with diminished force between 1° 00′ W., and 0° 30′ W.

January 7th, 1834. — For nearly a month the needle had not been perceived to be affected by the aurora, which it may be proper to observe was always very faint, apparently high, and generally confined to one point of the heavens.

Its motion was rarely detected, though, from some discrepancies in the diurnal course of the needle, such an occurrence may be inferred. At 10^h P.M. this night, the sky was nearly entirely obscured, except at the northern and western horizons above the hills. At the former were some bright rays, and at the latter a brilliant streaming mass of a reddish coloured aurora, which, as I went to the observatory, flitted across the zenith to the eastward.

The needle was moving quickly, and having marked it at 5° 30′ E., I ran for Mr. King to watch the motion of the aurora; and noting the time by chronometer (17^h 30^m 00^s), I saw the needle move from 5° 30′ E. to 2° 00′ E., to 0° 40′ E., to 1° 20′ E., to 0° 10′ W., to 0° 10′ E., to 1° 40′ E., a large mass darted up from S.W., and faded into the tone or colour of the sky at the zenith: 2° 35′ E. to 1° 10′ E., a beam from east to west, passing northerly at an angle of 80°: 1° 50′ to 1° 40′ E., a high horizontal narrow mass at an angle of 15° E.: 1° 55′ E., 2° 15′ E., 1° 25′ E., 2° 20′ E., 1° 00′ E., 2° 25′ E., 1° 35′ E., a beam shot up from north, and, dividing itself into three branches, extended to the S.W.

horizon at an angle of 25°: 3° 00′ E. to 1° 35′ E., to 0° 50′ E., to 1° 35′ E., to 1° 10′ E., to 2° 30′ E., a large mass from west to south: 2° 00′ E., 2° 10′ E., 1° 55′ E., concentrated mass due south, in magnetical meridian: needle nearly steady at 1° 40′ E., 2° 00′, steady five seconds: 1° 50′ E. to 2° 05′ E., a beam from N. E. to N., 0° 30′ E.: needle moved slowly to 1° 05′ E., 0° 05′ E., a beam N.E.: to 1° 10′ E., to 0° 30′ W., to 0° 40′ E., to 0° 22′ W., to 1° 40′ E., and stopt suddenly at 0° 5′ E., to 1° 50′ E., beam from east to west: 2° 0′ E., to 00° 00′, to 0° 05′ E., to 0° 22′ W., corona at zenith: 1° 20′ W., to 0° 40′ W., to 0° 05′ W., to 1° 35′ W., to 1° 10′ W., to 2° 40′ W., small concentrated mass over the observatory: 1° 50′ W., to 2° 50′ W., to 2° 0′ W., narrow arch from N.E. to zenith: 2° 50′ W., slowly to 1° 50′ W., much slower to 2° 50′ W., 1° 30′ W., to 2° 00′ W., a bright beam expanded into a narrow horizontal mass, 10° high, from east to west: 1° 40′ W. to 2° 05′ W., beams from S.E. to N.NE.: 1° 25′ W. to 1° 45′ W., some round patches from E. to N.W.: needle steady a few seconds, then moved to 1° 20′ W., to 1° 45′ W., 1° 36′ W., steady again, then to 2° 12′ W., to 1° 50′ W., to 2° 05′ W., slowly to 1° 54′, to 1° 10′ W., to 2° 05′ W., to 1° 30′ W., to 1° 40′ W., where it remained steady fifteen seconds, and changed to 1° 38′ W., to 1° 40′ W., to 1° 35′ W., to 1° 45′ W., stationary at 1° 20′ W., and finally settled very slowly at 1° 00′ W. The time was then $17^h\ 54^m\ 15^s$, making an elapsed time of $24^m\ 15^s$.

On returning to the house, I remarked the total disappearance of the aurora, with the exception of a filmy light at E. b. N., and W. With it had vanished the dense covering of the sky, which was now of a dark

blue colour, and studded with twinkling stars. The thermometer in the air was $-22\frac{1}{2}°$, and in the observatory $-16°$, and there was a light breeze from W.N.W. At 11^h there was no aurora.

January 14th. — At 9^h A.M. mean of thermometers $-59°$; the sky clear in the zenith, but misty about the horizon. Needle 0° 58′ E., slightly vibrating. As the sun rose above the adjacent mountain, it began to move between 1° 40′ and 50′ E. At 10^h P.M. thermometer $-55°$, sky deep blue, weather calm. The aurora was generally diffused from rays at N.W. b. N., and E. b. S. to an attenuated arch across the zenith, emanating from N.E. b. E., and extending to W. But from the same point, and as far as due east, rose a clear serpentine beam which took a southerly direction at an angle of 25°, and terminated in an obtuse point at W.S.W., 3° high. Some wreaths, and four very singularly shaped beams, were for a time apparently stationary at E. N. E. and E., the latter were almost at right angles to the arch, as

The needle was perfectly steady at 0° 12′ E., but on returning to the house, I could not avoid remarking a dull reddish beam that darted up from E. b. N., and to which the others near it seemed attracted. It increased in brightness at its nearest point to the horizon, which was about 8° high. The western part of the arch previously mentioned became faint, and though distinctly perceptible, yet it was evident by its streaming towards the red beam that it was concentrating at the east. I immediately returned to the needle, and found it had changed from 0° 12′ E. to 0° 24′ E., where it remained, as did the aurora also in the same place.

January 15th. — At 1^h P.M., on looking at the needle it appeared to be stationary at 0° 8′ W., but on continuing to look, without altering my position, I could detect it moving with the utmost steadiness, and so gently as would have escaped common observation: it was a full minute in retrograding to 0° 00′, and it again advanced to 0° 5′ W. The weather was almost calm, or there might be said to be the lightest air from E. N. E.; the sky was blue, perfectly clear, and the sun so bright, as to make 16° difference between the thermometer exposed to its rays and that in the shade, which was −46°. As I wished to convince myself if my own person had not caused the motion, though I could not see how it should, since the motion was horizontal, and my position was in almost a direct line with the axis of the needle, I applied my finger to the glass immediately before and on a level with the needle, and the instantaneous effect was that of a violent perpendicular, or what I have hitherto called a tremulous, action, which dipped half the depth of the needle below the graduated arc of the instrument. This did not affect the reading, which was still the same, viz. 0° 5′ W.

It may be observed, that the late intense cold had chapped my hands to a painful degree, and I had greased them a few hours previous to observing the needle.

February 9th. — At 10^h 20^m P.M. the sky was almost entirely covered with coruscations; but the most conspicuous was a broad serpentine and bright arch extending from E.b.N. to W.b.S., and along which there appeared at times to be two currents in active motion from opposite points.

I found the needle vibrating steadily as follows: — 0° 20′ E., motion of aurora from W. to E.: 0° 05′ E., motion W.: 0° 20′ W., undulating motion W.: 0° 05′ W., 00° 00′, motion W. to E. across the zenith: 0° 20′ E., a bright arch at E., 10° broad: 0° 10′ E., slight motion over the zenith, then the motion was from W. to the zenith, 00° 00′: serpentine motion across zenith from W. to E., 0° 40′ E., 0° 30′ E.: motion over zenith, 0° 10′ E.: motion from W. to E., not beyond zenith, 00° 00′. The broad arch now moved southerly, at an angle of 80°, and at the same time there was a bright mass at S.E., 0° 20 E.: flashes flitting suddenly between S.E. and E., 0° 10′ E., 1° 20′ E.

Motion over zenith from W. to E., 0° 20′ E. to 1° 00′ E., generally diffused and very active: an undulating mass at N.E., 2° 30′ to 0° 20′ E.: bright mass at S.E., 0° 40′ E. to 0° 20 E.: generally diffused but still bright at S.E., 0° 10′ W.: beams at W., 0° 25′ W.: beams at N.E., 00° 00′: serpentine waving across zenith from W. to E., in an arch, 00° 00′ to 0° 25′ E.: 00° 00′, mass westward.

Mass at W., extending easterly, with a rapid motion from W. to E., 1° 00′ E., to 0° 30′ E., 1° 10′ E., to 0° 35′ E.: a bright mass at E., 1° 20 E.: motion W.

to E., 1° 00′ to 00° 30′ E.: 1° 30′ E. to 0° 35′ E., a waving band, motion over zenith: little motion, 0° 20′ E.: patches generally diffused, 00° 00′.

Corona at zenith, which changed into six figures, each similar to the letter S, presenting the appearance of so many snakes twisting with amazing swiftness, 00° 00′ to 0° 15′ W.: no motion, 0° 05′ E.: patches W. to E., southerly, 0° 35′ E., 0° 30′ E.: no motion, 0° 20′ E., stationary. Elapsed time, 32^{m}. At the termination, the aurora was generally diffused N. and S.; streaky, motionless, and dull. Thermometer $-37\frac{1}{2}^{\circ}$; calm; sky, blue.

February 10th.—At 10^{h} P.M. there was an extremely brilliant arch of a serpentine form extending from W.b.S. to E.b.N., but there was no motion, and the needle was unaffected beyond 10′, viz. from 0° 40′ to 0° 30′ E. At 11^{h} 10^{m}, however, the aurora assumed an amazing variety of forms, though the most imposing was a fringed and zig-zag'd undulating arch, composed of numberless bright rays in the direction of the dipping needle, but flitting with incredible swiftness in a lateral direction from W. to E.

From 0° 40′ E. to 0° 05′ W., motion W. to E.: 1° 0′ E., 0° 20′ E., 00° 00′, no visible motion: 0° 20′ E., motion E. to W.: 0° 30′ E. to 0° 05′ W., rays appearing and disappearing, motion W. to E.: 0° 25′ W., 0° 15 E., motion E. to W.: 0° 20′ E. to 0° 18′ W., no motion: 0° 05′ W., waving arch S.W. to E.: 0° 45′ W., 0° 55′ W., 0° 40′, bright arch S.E., generally diffused: needle remained stationary 5^{s}: 0° 10′ E., 00° 00′, little movement of needle, faint corona at zenith: 0° 08′ W., 0° 30′ W., 0° 25′ W., slowly to 0° 40′ W., 0° 45′ W., arch W. to E., at an angle of 30° northerly: 0° 45′ W., almost stationary, a beam

S.: 0° 45′ W., 0° 52′ W., stationary: 0° 50′ W., 0° 58′ W., arch W. to E. b. N.: 0° 00′ W., steady. Elapsed time, 22^{m}. Thermometer, air —24°, in observatory —13°; weather, calm; sky, blue.

On going out from the needle, I observed the southern portion of the heavens to be more or less occupied by beams, and rays at right angles to them, or in the magnetic position of due north and south. But northwards, at an angle of 10° N.E., was a bright waving double band, which also formed a part of the same original arch that extended from E. N. E. to W. b. S.

The increasing brilliancy of the double band induced me to revisit the needle, supposing that I should find it somewhere near 00° 00′ or zero; but, so far from this, it had not moved, and remained still steady at 0° 55′ W.: from it might be inferred a negative or repulsive action, in opposition to our former opinions, mentioned in Franklin's last narrative, of an attractive or positive action to the nearest situated aurora. The brightness of the band remained the same on my return to the house.

March 8th. — For many days past the needle had evinced a restlessness and vibrating action corresponding to its motion when affected by the aurora; but as in some cases it had changed its position, though with less acceleration, after the sun had risen, and become stationary after it had set, I have been at a loss to account for its unusual activity, the whole of these twenty-four hours in particular, except by supposing the invisible presence of the aurora in full day.

The sky was blue and clear, with a few clouds of fleecy whiteness, and at each time of observing, I found it impossible to detect the faintest moving substance in the heavens: still, however, the needle kept constantly making unequal arcs, and I watched it in the hope of

seeing it assume some fixed point, until I was fairly tired out. At 7^h P. M., it being "twilight grey," but with a purplish blue tint over head, a very faint reddish aurora could be with difficulty distinguished. This became more clear as the night darkened, and at $9^h\ 54^m\ 00^s$ P. M., some clouds at S.W. and E. were illuminated exactly similar to the effect produced by the moon when rising. The needle was agitated, and moved only 15′ backward and forward, insomuch that I told Mr. King, who was waiting outside the observatory, that there was no occasion for him to stay; but when I was about to return to the house, I perceived some very thin filmy rays flit with great swiftness from S.S.W., at an angle of 18°, to E. b. S.: here they became united with the illumined part, which they seemed to set into immediate and violent motion; at the same instant the S.S.W. quarter was left in darkness, while the eastern glowed in one brilliant mass of whirling aurora. Having called to Mr. King, I ran to the needle, which was moving very quickly to the eastward. It went from 0° 10′ E. at once to 2° 0′ E., to 2° 15′ E., to 3° 10′ E., arch E. to S. W. across the zenith: 2° 40′ to 2° 05′ E., beam S.W.: 2° 50′, luminous in the south: 3° 10′ E., arch E. to S.W., motion S.W. to E.: 3° 00′ to 3° 18′, arch E. to S.W. over zenith: 1° 55′ E., arch in motion S.W. to E. over zenith, 1° 30′ E.: arch S.W. to N.E. across zenith, 3° 25′ E.: 2° 20′ E., 3° 15′ E., arch S.W to E. over zenith, and another S.W. to S.E., at an angle of 80°: 3° 30′ E. to 2° 10′ E., 4° 00′ E., 2° 15′ E., arch over zenith: 1° 55′ E., motion S.W. to E.: 1° 20′ E., 2° 10′ E., 1° 40′ E., 2° 40′ E., 1° 40′ E., 4° 10′, motion W. to N.E.: 3° 30′ E. to 3° 50′ E., 2° 30′ E., motion due E. along the same arch: 0° 55′ E., 1° 30′ E., 0° 35′ E., 1° 50′ E., 0° 30′ E., 1° 25′ E., 0° 10′ W.,

1° 15′ E., 0° 05′ E., 1° 28′ E., a very irregular arch S.W. to E., at an angle of 45°: 0° 20′ E., 0° 40′ W., 00° 00′, 1° 40′ W., 1° 40′ W., 1° 00′ W., 1° 50′ W., 1° 10′ W., luminous appearances generally diffused in patches: 0° 30′ W., bright at W.S.W.: 1° 00′ E., a concentrated mass at the zenith, motion southerly to the horizon: 0° 50′ E., 00° 00′, the mass travelling south: 0° 20′ E., 0° 10′ W., 0° 20′ E., 0° 10′ W., 0° 25′ E., 0° 08′ W., 0° 20′ E., 0° 28′ W., faint, no motion: 0° 10′ W., 0° 40′ W., 0° 20′ W., 0° 50′ E., 1° 00′ E., mass W.S.W.: 0° 50′ E., when it was stationary five seconds, and then moved slowly to 0° 40′ E., 0° 50′ E., stationary five seconds, 0° 30′ E., 0° 45′ E., 0° 30′ E., 0° 50′ E., luminous appearance S.S.E.: 0° 28′ E., 0° 12′ W., luminous appearance from S.S.E. to E.S.E., at an angle of 15°: 0° 05′ E., 0° 35′ E., 0° 15′ E., 0° 40′ E., 0° 50′ E., 0° 40′ E., 0° 55′ E., 0° 40′ E., 1° 00′ E., light appearances from W. to N.: overcast; 0° 30′ E., 0° 40′ E., 0° 20′ E., 0° 30′ E., 0° 05′ E., 0° 25′ E., 0° 20′ E. Here I finished, and, on going out, found the sky overcast, though some few stars were just visible. The aurora was then so faint, that the feeble light from a lantern with one pane of glass prevented my seeing it; but, as the needle was still in motion, I naturally conceived there must be some cause for it, and having concealed the light by placing the lantern under my cloak, I could then barely make out a very filmy arch at S.W., which, however, soon vanished. The temperature outside was —14°, inside —4°; calm and overcast.

Time at beginning	16^h	09^m	00^s
——— ending	16	33	40
Interval	00	24	40

April 4th. — For the last three weeks the appearance

of the aurora has been faint, and with comparatively little motion. The needle in consequence has been less affected in the extent of the sum of its arcs, though, as may be seen by a reference to the register, it has seldom been completely stationary. Sometimes I have remarked a quick vibratory motion of unequal arcs during the day, the extremes of which will be found to be always noted in their proper columns; at others, a much weaker action has been exerted, when the needle has remained a few seconds at its extreme eastern or western limit, then receded perhaps 10′, advanced 5′, and again deflected beyond its zero: and, finally, there were times when its motion was so slow, even, and regular, that a hasty observer would undoubtedly consider it to have been steady; though, by keeping the eye to the telescope, it would be seen to alter its position 5′ or 8′, but, as I have just remarked, with such an extremely gentle action, that it might have easily escaped detection.

At 10^h P. M. this day, I was struck by an unusual brightness of the snow when I went out of the house, and on turning round perceived that it was the effect of a brilliant arch extending from the N. E. to the opposite horizon. The sky was of a pale blue, the stars visible, but a thin veil of mist dimmed their brightness.

At $16^h\ 24^m\ 00^s$ by chronometer the needle showed the following differences: — From 1° 40′ E. to 1° 30′ E., arch E. to S.W., across the zenith: 1° 38′ E., 1° 45′ E., concentrated mass at the zenith, and patches E. to S.W.: 1° 20′ E., 1° 45′ E., bright at E.S.E.: 1° 55′ E., 1° 51′ E.. arch E. to zenith: 1° 30′, arch E. to W. at an angle of 10° (southerly): 1° 30′ E., 1° 45′ E., corona at the zenith: 1° 40′ E., convolving circular mass at E., 1° 30′ E., mass travelling S.W.: 1° 40′ E., steady for a few seconds, bands generally diffused: 1° 50′ E., bright to

the eastward: 2° 00′ E., 2° 05′ E., slight motion S.W. to E.: 2° 25′ E., serpentine motion over the zenith: brighter to the westward, 1° 30′ E., 1° 40′ E.: a waving arch over the zenith E. to W., travelling S.W. at an altitude of 45°, 2° 5′ E.: motion S.W., a circular band, 1° 55′ E.: N.W. bright, 1° 30′ E., 1° 45′ E.: an arch from N.W. to S.W. at an angle of 40°, 1° 25′ E., 1° 40′ E.: motion westward, 1° 20′ E.: 1° 12′ E., 1° 50′ E., an arch from N. E. to the zenith, 2° 15′ E., 2° 0′ E., 2° 20′ E.: mass westerly, 2° 0′ E.: the needle now became very tremulous, 1° 45′ E., 1° 15 E.: mass faint to the W., 1° 35′ E., 1° 20′ E., 1° 38′ E., 1° 28′ E., 1° 42′ E., 1° 25′ E., 1° 35′ E.: mass brightening to the westward, 1° 10′ E., 1° 20′ E., 1° 02′ E.: mass W.S.W. to N., at an angle of 30°, 1° 12′ E., 1° 08′ E., 1° 45′ E., 1° 20′ E., 1° 35′ E., 1° 10′ E., 1° 28′ E., 0° 58′ E., 1° 15′ E., 0° 48′ E., 0° 55′ E., 0° 20′ E.: a small patch at S. E., 0° 15′ E., 0° 05′ E., 0° 15′ E., 0° 05′ E., 0° 20′ E., 0° 04′ W.: 0° 40′ W., the sky was overcast; the little of the aurora that was discernible was very faint and without motion: 0° 12′ W., 0° 48′ W., bands at S. E.: 0° 10′ W., generally diffused: 0° 05′ W., 0° 25′ W., 0° 08′ W., patches S.W and S.E.: 0° 50′ E., 0° 28′ E., this last vibration was very slow, arch passing from E.S.E. to W.S.W. across the zenith: 0° 10′ E., where it became steady, and the aurora faded away.

Time at beginning	16^h	52^m	20^s
——— ending	16	24	00
Interval		28	20

Temperature of the air, $+5\frac{1}{2}°$; of observatory, +17. Sky, pale blue, misty; weather, calm. I may mention that the needle invariably moved easterly or westerly some seconds before Mr. King could perceive any change in the aurora; and which frequently occasioned me to call out, "I'm sure there must be something

moving," "Look S.W." &c., and as frequently have I had an answer, "There is nothing but a faint beam S.W., E.," &c.; which, in point of fact, was probably the very cause of the excitement of the needle. I should not have stated this daily occurrence, except for the purpose of showing the nice delicacy of the instrument, and the difficulty the outside observer will always have in detecting the first motion of the aurora.

November 7th. — The needle had been vibrating all day until 7^h P.M., when it became steady at $9^h\ 45^m$: however, the whole sky was more or less covered with aurora, in the form of beams, spiral and fringed bands, rays, and brilliant masses, which latter flitted to the opposite extremes of W.S.W. and E. b. N. alternately, and not unfrequently made tangential movements from near the zenith to N. and S.; a few streaky but extremely attenuated narrow clouds were in a position across the zenith, and a black mass was slowly rising from the westward. On visiting the needle, I found it in rapid motion from 2° 00′ W. to 3° 40′ W., to 4° 10′ W., to 4° 00′ W., a beam shot up from S.W.: 2° 30′ W., flitting motion E. and W.: a mass rose from the western horizon to 70° altitude, 1° 50′ W.: a bright mass westward, 2° 40′ W., which afterwards formed a fringed band from N. to W.: arch from S. to zenith, 1° 50′ W.: to 2° 30′ W., beams from a luminous mass W. to zenith: 1° 40′ W., a bright beam S.: faint motion N. to W.: 2° 40′ W., 1° 30′ W., 2° 40′ W., aurora faint, slight motion S.W.: 1° 50′ W.: mass W., 2° 30′ W., 1° 50′ W., 2° 10′ W., 1° 35′ W., beam north: 2° 00′ W., 1° 32′ W., no aurora westerly: 1° 30′ W., 2° 10′ W., a beam N.: 1° 40′ W., 2° 00′ W., 2° 40′ W., a band E. to N.: 2° 00′ W., to 2° 50′ W., 3° 05′ W., 2° 40′ W., 3° 05′ W., an irregular fringed band from 10° to 20° altitude,

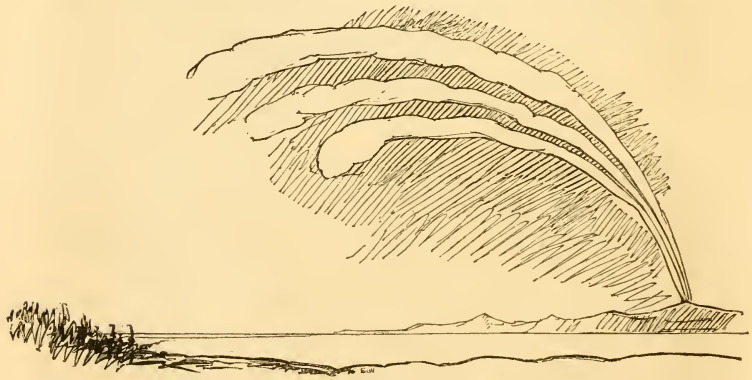
with a movement from E. to W.: 3° 05′ W., faint: 2° 40′ W., 3° 20′ W., pencilled rays at E.b.N., motion E. and W. alternately: 3° 00′ W., 2° 50′ W., 2° 20′ W., 2° 45′ W., bright at N.: 2° 30′ W., 2° 55′ W., 2° 35′ W., 3° 00′ W., 2° 50′ W., to 3° 00′ W., a bright band from E. to N. stationary, become faint: 2° 35′ W., motion E. to N.: 2° 40′ W., 2° 30′ W., needle steady: a faint band E.N.E. to E., moving slowly between 2° 30′ W., and 3° 00′ W.: a small band at E., at an angle of 15°, 2° 40′ W., 2° 22′ W., 2° 30′ W.: a cloud from W. gradually obscured the band, 2° 00′ W., 1° 50′ W., 2° 05′ W., 1° 48′ W., 2° 00′ W., 1° 45′ W., 1° 52′ W., 1° 40′ W., needle tremulous: 1° 30′ W., E.b.N. to N.E., at an angle of 15° only: a patch N.E. on blue sky, 1° 25′ W., 1° 10′ W., stationary at 1° 05′ W., band disappeared. The stars were bright in the clear spaces, but not visible in the aurora.

Time at beginning	15^h	57^m	05^s
——— ending	16	19	00
Interval		21	55

Thermometer, observatory, +26°, air, +27°. Wind S.W. 5. At $16^h\ 40^m\ 00^s$ the sky was overcast, no stars, but eight luminous spots were seen at N., at an angle of 15°, and a luminous horizon at W.S.W.

November 21st. — The needle had been steady the greater part of the day, and at 10^h P.M. it was 0° 12′ E. At midnight the coruscations presented a beautiful appearance of concentric pencilled wreaths, convolving near the zenith; while fringed and undulating bands, composed of innumerable small rays, flitted from W.b.N. to E. At the last point they would sometimes concentrate into one brilliant radiating mass, and in an instant shoot out into multiform and eccentric shapes towards the zenith, while vivid rays of a perceptible

deep *red* and *yellow* colour danced in spiral lines to the opposite horizon. On going to the observatory, the needle was in active motion; I found it at 0° 30′ W., the principal mass of aurora being also in that quarter; the motion of some rays at the time being from W. to E. It successively changed from 0° 30′ W., to 0° 50′ W., to 0° 15′ W.: a bright irregular arch from W. to zenith, 0° 50′ W: many rays and flashes at E., 1° 0′ W. to 0° 30′ W., to 1° 10′ W.: a bright mass at W., but without motion, 1° 40′ W. to 1° 45′ W.: mass in motion from W. to zenith, 1° 0′ W., to 1° 30′ W.: a faint irregularly fringed arch, extending from E. across the zenith to S.W., 0° 40′ W. to 1° 25′ W., to 0° 52′ W.: a faint mass without motion from W. to S.W., 0° 45′ W., 1° 05′ W.: concentric arches from W. to zenith,



0° 35′ W., 0° 50′ W., to 0° 30′ W.: a faint irregular mass from W. to S. W., 0° 30′ W., to 0° 55′ W., 0° 40′ W., 0° 55′ W., to 0° 40′ W., 0° 55′ W., and rested at 0° 40′ W.

Time at beginning	18^h	07^m	00^s
——— ending	18	14	30
Interval		7	30

Thermometer, observatory, +22°, air, +25°; wind, S.W. 6; weather clear, moon visible.

December 3d. — The needle had been steady all day, and at 7h P.M. it it was 0° 08′ E. At 10h P.M. there was a bright display of the aurora in the form of undulating bands, composed principally of connected rays, and many beams as well as flashes were plentifully dispersed. The needle moved from 20′ W., to 1° 00′ W., rays over the zenith: to 0° 20′ W., motion W. to E.: 0° 15′ E., to 0° 05′ E., to 0° 30′ E., to 0° 00′, mass W. to E.: an arch over zenith, 0° 22′ E.: a serpentine arch over zenith, 0° 28′ E., 0° 00′: a bright band over zenith, 0° 15′ E. to 0° 12′ W.: some bright beams from W., 0° 20′ W.: mass W. to E., 0° 00 to 0° 25′ W.: needle steady at 0° 20′ W.: bright at extremes of band W. and E., 0° 55′ W.: bright at W., 1° 20′ W.: rays flitting from W. to N., 1° 30′ W.: bright mass from W. to N., 1° 25′ W. to 0° 56′ W.: beams in active motion all round, and bright at W. 1° 15′ W., serpentine arch over zenith: mass from N. towards zenith at an angle of 60°, 0° 30′ W. to 1° 00′ W.: motion W. to E., and E. to W., 0° 20′ W. to 0° 45′ W.: motion W. to E., 0° 55′ W.: bright mass at E., 0° 25′ W. to 0° 50′ W.: motion W. to E., 0° 38′ W., to 1° 00′ W., to 0° 35′ W., to 0° 55′ W.: bright rays N.W., 1° 20′ W.: arch W. to S., 0° 55′ W. to 1° 10′ W., to 0° 45′ W.: arch W. to S.E. over zenith, 0° 42′ W.: bright mass at E., 0° 40′ W., 0° 32′ W., to 0° 45′ W.: generally diffused, steady at 2° 40′ W.

Time at beginning	16	09m	00s
——— ending	16	21	30
Interval		12	30

Thermometer, observatory, —27°, air, —38°. Weather, calm and fine.

December 18th. — At 10^h P.M., on going to the needle, which, from its having been steady at zero at 4^h P.M., and at 0° 10′ W. at 7^h P.M., I expected to find at zero again, I was surprised to observe, on the contrary, that it was at 1° 50′ W., from which it moved to 1° 25′ W., and then continued to vibrate gently between that and 1° 35′ W. The sky was perfectly clear, with the exception of a horizontal light cloud due N., but which had not the appearance of those dark grey or light filmy clouds, that seemed on certain occasions to influence the needle. The moon was bright, and as I had, according to custom, looked carefully for aurora without detecting any, before entering the observatory, I was the more puzzled to account for such an eccentric movement in the needle, without any apparent disturbing cause. At the moment it occurred to me, that the clear shining of the moon, which was at N. E., and the fineness of the night altogether might prevent me from distinguishing any rays or beams that might nevertheless be flitting about. I therefore looked again from different points around the observatory, but without perceiving the least vestige of aurora, and consequently thought it might be attributable to the continuance of the westerly wind; for during its prevalence, for three days past, the needle had shown a disposition to keep to that quarter: but on getting in the *dark shade of the house* on my return, I immediately saw two reddish *rays* and a long slender *beam* at S.W. projecting towards the zenith, neither of which was visible in the moonlight or out of the shade. This appeared to answer for the deflection, of the needle, and to give some clue to its frequent disturbance during the day, as has been already noticed.

December 21st. — The needle had been moving almost all day, the weather extremely cold to the sensation owing to a fresh breeze from S.W., attended by a

gloomy and misty atmosphere. There was more or less aurora at 7^h P.M., and 10^h, but at midnight it exhibited one of the most brilliant appearances I ever remember to have witnessed, displaying at the same time a remarkably deep *lake*-coloured tinge, that became graduated into *orange* and faint *yellow*, which seemed to vanish into pale *white*.

To give any thing like a correct idea of phenomena perpetually altering their form, and presenting several striking appearances at the same instant of time, must be difficult, though perhaps it may be requisite to state that there were two connecting *points* at *E. and W.b.S.*, from and to which the great current flowed in various shaped arches, *fringed and irregular*, or composed of rays, or beams, or streaming in a quick and regular flow, or moving in spirals, or, lastly, thrown into collateral parts, which of a sudden would dart at a tangent towards the northern or southern horizon, become dispersed into separate, and to the eye unconnected parts, and then with the speed of thought concentrate once more at W. and E.

The needle I found moving with a velocity which must have taken it against the sides of the instrument, had not a counter-influence in the rapid and eccentric tracks of the aurora prevented it. It went from 0° 30′ E. to 1° 00′ E., to 0° 40′ E., 1° 00′ W., 0° 00′ to 0° 40′ W.; bright at W. 0° 5′ W.; motion at W., 0° 20′ E.; moving N. from W., 0° 00′; motion across the zenith from W. to E., 0° 30′ W., 0° 00′; bright bands from W. to E., 0° 40′ E., 0° 15′ W.; motion westerly, 0° 20′ E., 0° 30′ W., 0° 30′ E. 0° 10′ W.: motion W. to E., 0° 20′ E., 0° 5′ E., *dead stop*, 0° 55′ E., 0° 10′ E., 0° 30′ E., 0° 8′ W.: motion N.W.N. to E. 0° 38′ E., 0° 5′ W., 0° 30′ E., 0° 0′, 0° 35′ E., a waving arch over zenith. Spiral beams from E. to W., and laterally

to the northern and southern horizons, 0° 10′ E. to 0° 20′ W., 0° 32′ W., 0° 05′ W., 0° 20′ W., 0° 32′ W., 0° 20′ W., 0° 40′ W., 1° 00′ W.: motion W.: 0° 55′ W., 0° 10′ W., 0° 40′ W., 0° 20′ W.: bright at W. and N., 0° 15′ W.: motion W. to E., 1° 00′ W., 0° 35′ W., 1° 00′ W.: motion W., 0° 15′ W.: motion E. to W. 0° 55′ W.: a flitting motion over the zenith to E., 0° 20′ W., 0° 50′ W.: motion N., 0° 20′ W., 0° 48′ W., 0° 20′ W., 0° 55′ W.: rays W., 0° 40′ W., 0° 55′ W.: motion W. to E., 0° 18′ W., 0° 20′ W., 0° 10′ W.: motion W. to N., 0° 30′ W.: no motion perceptible, 0° 05′ E., 0° 05′ W., 0° 05 E., 0° 10′ W.: bright at W., 0° 02 E., 0° 32′ W.: motion at W., 0° 10′ W., 0° 25′ W., 0° 10′ W., 0° 15′ W., 0° 10′ W.

Time at beginning	18^h	10^m	00^s
——— ending	18	26	00
Interval		16	00

Thermometer, observatory —36°, air, —46°, calm and clear; moon bright, and a dark blue sky. Aurora apparently low.

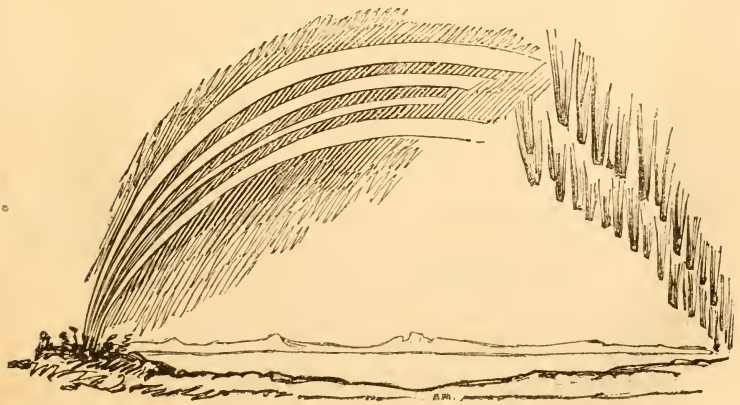
December 22d. — The day had been cold and misty, and the needle was more or less agitated, having been steady but twice. At 10^h P. M. the aurora was bright even through the mist, and was generally diffused N., S., E., and W., though bands of quickly moving rays were travelling westerly at the time I was entering the observatory. The needle was vibrating from 3° 30′ W. to 4° 40′ W.: aurora became concentrated, with a southerly motion, 3° 55′ W., 4° 00′ W.: an irregular mass in motion from S. to W., and a thick mist came on, 3° 10′ W.: mass seen through the mist at E., 3° 30′ W.: a faint band with rays from S.E. to W., at an angle of 60°, passing southerly, 3° 00′ W.: a band N.W. to E., 2° 40′ E.: motion S. to W., 2° 50′ W., 2° 20′W.,

1° 55′ W.: faint S.W. to W., 1° 55′ W., 1° 20′ W., 1° 30′ W., 1° 10′ W., 0° 05′ W.: a band N.W. to N.E., 0° 15′ W.: faint appearance at S., 0° 00′, 0° 20′ W., 0° 20′ W. The aurora was again brightening when, from my fingers being nearly frozen, I was obliged to leave off.

Time at beginning	16^h	15^m	30^s
——— ending	16	24	00
Interval		8	30

Thermometer, observatory, —44°, air, —52°. Calm and misty.

December 23d. — There had been aurora all the evening, and at 10^h P.M. the needle was in slight motion at 0° 40′ W. At midnight the aurora was generally diffused; the principal stream being at E., and extending almost across the zenith to W.b.S. It flowed in three distinct bands, which separated or forked into three others, whose faint extremities expanded 20°, and were there joined by an irregular band of rays that completed the semicircle. The needle moved from 1° 40′

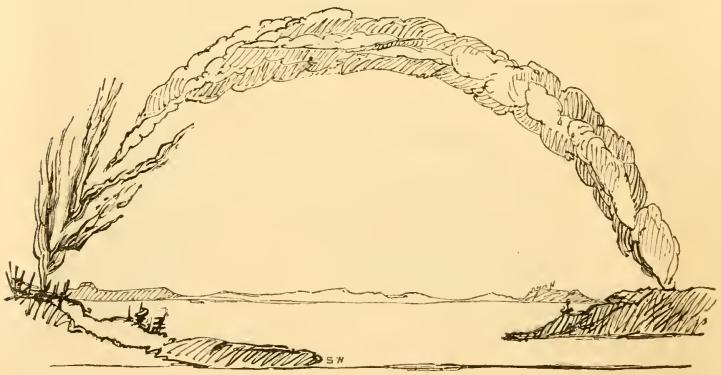


W. to 2° 20′ W.: bright at S.W., 1° 55′ W., 2° 15′ W., 1° 58′ W.: motion W.N.W. to S.E., 2° 12′ W., W., 1° 55′ W., 2° 10′ W.: faint mass at S.W., 1° 57′ W., 2° 05′ W., 1° 50′ W.: spiral band N.E. to E., 2° 00′ W., 1° 55′ W., 1° 58′ W., 1° 48′ W., 1° 55′ W., 1° 48′ W., 1° 55′ W.: motion N. to E., 1° 48′ W., 1° 55′ W., 1° 48′ W.

Time at beginning	17h	59m	00s
——— ending	18	03	30
Interval		4	30

Temperature, observatory, —49°, air, —58°. Calm, blue sky, and misty.

December 25th. — At 9h A.M. the needle was vibrating in the same manner as when the aurora was present; and the sky was clear, except an arch of very streaky and filmy clouds which extended from W. across the zenith to E. The resemblance to the corus-



cations was perfect, but I could not detect any motion; yet the needle indicated such; for it varied in the readings between 0° 30′ E. and 0° 55′ E. At noon a light mass of cloud remained at E.b.S.; the sun was

bright, about 3° 30′ high, and a light breeze prevailed from E. S. E.; still the needle was moving between 1° 10′ E. and 1° 30′ E. Thermometer, observatory, —33½°, air, —37°, sun, —36.

January 15th. — There was a calm nearly all day, the weather sometimes clear, sometimes overcast, and the needle had been found always vibrating slowly and unequally. At 10^{h} P.M. the moon bore E., and was dimly seen through the grey haze that overcast the sky: I found the needle moving at 1° 00′ E., and immediately ran out, but could not detect any aurora, except by a softened flaky appearance for a moment at S.E., at an angle of about 45°; on my return, the needle was still vibrating at 1° 20′ E., from which it went at once to 7° 50′ E., the farthest I ever saw; it then returned to 6° 40′ E., to 6° 00′ E., to 6° 20′ E., to 4° 50′ E., to 5° 00′ E., to 1° 30′ E., to 2° 25′ E., to 1° 05′ E., to 2° 00′ E., to 1° 25′ E., to 2° 55′ E., to 2° 12′ E., to 3° 00′ E., to 2° 10′ E., to 2° 00′ E., to 1° 40′ E., to 2° 12′ E., to 0° 50′ E., to 0° 30′ W., to 0° 02′ W., to 0° 20′ W., to 0° 30′ E., 0° 20′ E., 1° 00′ E., 0° 30′ E., 1° 20′ E., 1° 05′ E., 1° 15′ E., 0° 50′ E., 1° 02′ E., 0° 35′ E., 0° 00′, 0° 40′, W., 1° 00′ W., 0° 40′ W., 0° 30′ W.

Time at beginning	16^{h}	09^{m}	00^{s}
——— ending	16	20	00
Interval		11	00

Thermometer, observatory, —17°, air, —20°. Wind N.E. Weather, overcast and hazy. The aurora was bright before it was overcast.

February 1st. — The weather had been particularly fine and clear all day, though the needle had been either slowly moving, or tremulous, or swagging, which I term agitated. The sun was bright, and had the power to

make a difference of 36° between the thermometer at the north and south sides of the observatory. At 7h P.M. there was a faint diffusion of aurora, apparently high, the needle was tremulous —0° 02′ W., but at 10h P.M. the thermometer had sunk to—50¾°, and the aurora presented the most brilliant appearance I ever saw at so low a temperature: the main stream rose in a narrow but vivid column at E.b.N., and after making a zig-zag bend to E., pursued a direction to W. in an undulating arch 70° N.; but from the westward there were no less than seven distinct parts of arcs, issuing from another condensed column, of a dull red and orange mixed with yellow. These arcs had an altitude from 20° to 50°, stretching towards the S.E., where I observed several bright rays: all of those E. and W. were more or less tinged with the colour I have mentioned, but beyond, or what I should denominate higher, were many white filmy rays or bands. On examination I found the needle strangely acted on, which was shown by the quickness and sudden checks or dead stops it exhibited, according to the current and counter-current of the prevalent band or stream. One fact I was glad to ascertain, viz. that the marked end of the needle was at 1° 20′ W., when the most powerfully concentrated aurora was at E.b.N. and E.b.S., both rising into arcs, the former (northerly) to W. at an angle of 60°, the latter (southerly) faintly to S.W. Finding that the needle only vibrated at different arcs between 0° 50′ and 1° 20′ W., I went out to watch the motion of the aurora, when it underwent transitions of form, from streaming arches to spirals, zig-zag'd, convoluted, and indescribable bands of rays, and beams altogether so eccentric and beautiful, as to exceed the visions of the most exuberant imagination. Coronæ were frequent, and as every part was in rapid motion, it will be readily conceived to be no easy

task to decide on the correct one; and all that was evident to me, may be simply called two currents in direct opposition, sometimes along double bands or arches, and as often existing in a single arch, though in the latter case I remarked that the paramount motion, if from the westward, for instance, did not cease until it had passed the zenith of its arc, and was encountered and borne away by a superior eastern current. In the midst of these conflicting phenomena I ran to the needle, and found it almost steady as regarded the minute, which was 0° 45′ W., but so tremulous (see-sawing perpendicularly) that it dipped (by estimation) full 10′ of the graduated arc of the instrument. On going out again the appearances had changed, but were still brilliant, and more spread between E.b.N. and S.E. The two currents, however, were still obvious, and though the aurora was what I should say comparatively high to what it had been on other occasions, yet it not only excluded the stars, which it may be remarked were previously particularly bright, but when visible it made them appear to be at an immense distance. On the other hand, their twinkling suffered only partially from the interposition of the pale and flaky aurora which was evidently much higher than the principal streams; and it may not be out of place to mention, that had I been unacquainted with the locality, I should have positively averred that I heard a whizzing noise during the rapidity of the motion, but which noise I knew was the faint murmur of Anderson's Fall in the river to the N.W. On returning to the needle it had moved to 0° 50′ W., but was very tremulous, which may lead to a supposition that the same effect may be produced by a similar (though invisible) cause during the day; I mean, counter-currents of aurora.

February 8th. — At 9h A.M. the needle was at 0° 37′ E., agitated. The weather was clear with a cloudless sky and bright sun, when at noon I found the needle in rapid motion from 2° 10′ E. to 2° 50′ E., 2° 20′ E., 2° 50 E., 2° 20′ E., 2° 40′ E., 2° 10′ E, 2° 00′ E., 2° 10′ E., 2° 00′ E., very slow to 2° 20′ E., 2° 08′ E., 2° 25′ E., 2° 15′ E., 2° 20′ E., where it remained steady five seconds, then moved again to 2° 25′ E., 2° 20′ E., 2° 30′ E., and slowly to 2° 28′ E., quicker to 2° 35′ E., 2° 25′ E., 2° 32′ E., 2° 22′ E., 2° 34′ E., 2° 25′ E., 2° 42′ E., 2° 26′ E., 2° 38′ E., 2° 20′ E., 2° 32′ E., 2° 24′ E., 2° 33′ E., 2° 20′ E., 2° 24′ E., 2° 14′ E., 2° 20′ E., 2° 05′ E., 2° 12′ E., 2° 04′ E., 2° 16′ E., 2° 18′ E., 2° 15 E., 2° 14′ E., 2° 20′ E., 2° 15′ E., 2° 20′ E., 2° 18′ E., 2° 22′ E., where it kept still moving, but very slowly.

Time at beginning	6h	10m	40s
——— ending	6	21	10
Interval		10	30

Temperature, observatory, —9½°, air, —11°, sun, +23°; nothing perceptible in the sky.

No. VIII.

MAGNETICAL OBSERVATIONS.

During the progress of the expedition every opportunity was embraced of making the magnetical observations requisite for the determination of the dip and of the variation of the needle, and of the terrestrial magnetic intensity. At Fort Reliance, such observations were repeated on several occasions; and a series of observations was also instituted for determining the diurnal variation of the needle, and for ascertaining how far extraordinary changes in its direction might be attributable to the influence of the Aurora Borealis.

These observations have been placed in the hands of Professor Christie, who proposes discussing most of them in a paper shortly to be laid before the Royal Society. It will, therefore, be unnecessary here to enter into their details. As, however, some of the immediate results may be interesting, they are given in the following tables.

The Dip and Variation of the Magnetic Needle.

The dip was determined by means of a small but accurate dipping instrument, by Dollond, having a

needle three inches in length, resting upon hollow curved agates.

For the purpose of placing the instrument into the magnetic meridian, there was an apparatus, consisting of a cross piece, with a point and ball in the form of the axis of the needle; and on the point was placed a small horizontal needle; and the instrument moved bodily round (the index for the horizontal circle being placed at zero), until the small needle was parallel to the divided or vertical circle. The instrument was then levelled in the usual manner; but in case any accident should have happened to the level, this operation could be effected by the cross piece, before described, for placing the instrument into the meridian; for, as it acted upon the principle of the pendulum, the point at the bottom of the ball would show, by the division on the circle at 90°, the perpendicularity of the instrument, or the correct horizontal motion.

The dip was found at Fort Reliance in the usual manner, with needle No. 1., by taking the means of several readings, with the face of the needle to the face of the instrument, and with the face of the needle reversed, both with the face of the instrument east and with its face west; similar observations being made with the poles of the needle inverted: but in making observations for the dip with the needle No. 2., its poles were in no instance inverted.

If, then, we consider that the dip obtained with the needle No. 1. is the correct dip at Fort Reliance, it is evident that the dip deduced from the observations there with the needle No. 2. will require a small correction, in consequence of its centre of gravity not coinciding accurately with its axis; and the result obtained with this needle in all other cases will likewise require

a correction, though not a constant one. Professor Christie, however, who proposes reducing these observations, and likewise those which were made for determining the magnetic intensity, informs me, that for the observations from Fort Reliance to the sea, the amount of this correction will be small, seldom exceeding ten minutes.

The dip of the needle at the several stations given in Table I., is deduced by taking the mean of their readings.

TABLE I.

Containing the observed Dip and Variation of the Magnetic Needle.

Place of Observation.	Latitude, North.	Longitude, West.	Date of Observation.	Dip.	Needle employed.	Date of Observation.	Variation.
	° ′ ″	° ′ ″	1833.	° ′	No.		° ′ ″
New York - -	40 42 07	74 01 15	April 1	73 14	2	*1825	* 1 30 48 W.
Montreal - -	45 29 34	73 42 27	April 19	77 49	2		
Fort Alexander	50 36 49	96 21 25	June 10	79 20	2	- -	*15 15 41 E.
Cumberld House	53 57 33	102 21 46	July 6	80 49	2	- -	*19 14 21 E.
Ile à la Crosse	55 25 25	107 54 36	July 17	80 35	2	- -	*23 19 20 E.
Fort Chipewyan	58 42 32	111 19 00	July 31	81 52	2	- -	*25 29 37 E.
Fort Resolution	61 10 26	113 45 00	Aug. 9	83 7	2	1833	37 20 E.
			Oct. 9	84 44	2		
			Oct. 10	84 20	1		
			1834.				
Fort Reliance -	62 46 29	109 00 39	May 21	84 33	2		
			May 22	83 42	1	- -	35 19 E.
			Mean	84 39	2		[mean.]
			Mean	84 1	1	1834	
Musk Ox Rapid	64 40 51	108 8 10	July 2	86 13	2	July 2	44 24 E.
Rock Rapid -	65 54 18	98 10 7	July 23	87 54	2	- -	29 16 E.
Point Beaufort	67 41 24	95 2 16	July 31	88 13	2	July 31	6 00 W.
Montreal Island	67 47 27	95 18 15	Aug. 2	87 45	2	Aug. 2. A.M.	2 43 E.
						Aug. 2. P.M.	6 42 W.
Point Ogle - -	68 13 57	94 58 1	Aug. 12	89 26	2	Aug. 15. A.M.	1 52 E.
						— Noon	3 30 W.
						— P.M.	1 46 E.

* Variations in 1825 by Sir J. Franklin: —
At Fort Resolution the variation in 1825 was - 29° 15′ 09″
Ditto, in 1820 - - - - 25° 40′ 47″

The variation was determined by means of a Kater's compass made by Jones; and, when used, great care was taken to remove it from the proximity of any iron or other metallic substance which might be supposed to derange it.

Owing, I consider, to the great diminution of the directive force acting on the horizontal needle, the variation could not be determined with any degree of certainty after we arrived at the mouth of the Thlew-ee-choh; but whether the differences in the variation which I obtained at different times of the day were due to sluggishness in the needle, or to an actual change in the direction of the force acting upon the needle, to the amount observed, I will not venture to say, though there cannot be much doubt that the latter cause had some influence.

The Diurnal Variation.

The diurnal changes in the direction of the needle were determined with an instrument constructed by Jones expressly for this expedition.

The instrument consisted of a rectangular brass box, ten inches long, and two and a quarter wide; with pieces of plate glass at each end, and on the top; and was perfectly air-tight. It had two levels, and stood on three foot-screws, by means of which it was levelled. The needle was $8\frac{3}{4}$ inches long; and could vibrate in an arc of ten degrees on each side of the magnetic meridian. It could be used either vibrating on a centre, or by suspension, or both; as a pillar, with the necessary apparatus for preventing torsion, screwed on the top of the instrument. There was a small telescope, quite independent of the instrument, for reading off the

variation; and which had a motion concentric with the graduated arcs, rendering it unnecessary to approach the instrument too closely, and thus obviating many inconveniences.

The instrument was placed on the solid stand in the observatory described before. The observations of the direction of the needle were made for seven successive days, in October 1833, from the 22d to the 28th of the month, at every hour from 8 A. M. until midnight; and similar observations were made in April 1834, from the 23d of the month to the 29th, both days inclusive; and again in October 1834, from the 22d to the 28th inclusive.

The mean results of these observations are given in Tables II., III., and IV.

From November 1833 to April 1834, both months inclusive, and again, from November 1834 to March 1835, the direction of the needle was observed and registered each day, at the hours of 8 and 9 in the morning, noon, 1, 2, 3, 4, 7, 10, 12, afternoon.

The means of all the observations for each month (without attributing any of the deviations to, or making any correction for the appearance of, the Aurora Borealis) are contained in Table V.; and Table VI. shows the number of times, during each month, that the needle was in motion, whether tremulous or vibrating, at the several hours of registering its direction; together with the number of times that the aurora was visible.

No. II. Showing the Mean (daily) Variation and Temperature observed at Fort Reli- Seven

Month.	Year.	8h A.M.	Tem.	9h A.M.	Tem.	10h AM.	Tem.	11h A.M.	Tem.
		′ ″		′ ″	+	′ ″	+	′ ″	+
October 22. to 28.	1833.	47 08 E.		50 00 E.	25 64	27 51 E.	25 71	4 00 E.	26 14
Month.	Year.	5h P.M.	Tem.	6h P.M.	Tem.	7h P.M.	Tem.	8h P.M.	Tem.
		′ ″	+	′ ″	+	′ ″	+	′ ″	+
October 22. to 28.	1833.	1 08 E.	25 88	1 34 W.	25 74	5 25 E.	25 64	0 00	25 56

NOTE. — At 9h A.M. the needle was generally agitated. At 10h it vibrated once. At 11h steady. At 5h once tremulous. At 6h twice tremulous. At 7h thrice tremulous. At At midnight twice tremulous.

No. III. Showing the Mean Variation and Temperature, observed at Fort Reliance,

Month.	Year.	8h A.M.	Tem.	9h A.M.	Tem.	10h A.M.	Tem.	11h A.M.	Tem.
		′ ″	+	′ ″	+	′ ″	+	′ ″	+
April 23. to 29.	1834.	27 43 E.	16 2	24 25 E.	17 2	16 17 E.	18 00	11 34 E.	18 8
Month.	Year.	5h P.M.	Tem.	6h P.M.	Tem.	7h P.M.	Tem.	8h P.M.	Tem.
		′ ″	+	′ ″	+	′ ″	+	′ ″	+
April 23. to 29.	1834.	5 17 W.	22 5	5 26 W.	22 40	3 26 W.	22 00	1 25 W.	22 00

NOTE. — At 8h A.M. the needle was once moving. At 9h twice agitated. At 10h twice At 3h steady. At 4h once agitated. At 5h once tremulous. At 6h twice agitated. once vibrating. Midnight, moving twice. (Aurora visible only three times.)

No. IV. Showing the Mean Variation and Temperature, observed at Fort Reliance,

Month.	Year.	8h A.M.	Tem.	9h A.M.	Tem.	10h A.M.	Tem.	11h A.M.	Tem.
		′ ″	+	′ ″	+	′ ″	+	′ ″	+
October 22. to 28.	1834.	28 51 E.	12 93	19 51 E.	12 57	11 00 E.	13 86	5 51 E.	14 50
Month.	Year.	5h P.M.	Tem.	6h P.M.	Tem.	7h P.M.	Tem.	8h P.M.	Tem.
		′ ″	+	′ ″	+	′ ″	+	′ ″	+
October 22. to 28.	1834.	9 00 W.	16 93	9 17 W.	16 85	8 51 W.	16 93	11 08 W.	17 03

NOTE. —At 10h A.M. the needle was once in motion. At 11h once. At noon twice. At tremulous. At 9h twice in motion. At 10h

ance, for every Hour from 8 A.M. till Midnight, as indicated in the Table (for Days).

Noon.	Tem.	1h P.M.	Tem.	2h P.M.	Tem.	3h P.M.	Tem.	4 P.M.	Tem.	Position of Needle.
′ ″	+	′ ″	+	′ ″	+	′ ″	+	′ ″	+	
2 25 E.	26 35	1 31 W.	26 28	7 00 E.	26 40	0 00	26 36	4 34 E.	26 46	Suspended.

9h P.M.	Tem.	10h P.M.	Tem.	11h P.M.	Tem.	12h P.M.	Tem.
′ ″	+	′ ″	+	′ ″	+	′ ″	+
4 43 E.	25 07	8 08 W.	25 03	7 43 W.	24 86	3 51 E.	24 86

three times. At noon twice. At 1h P.M. thrice. At 2h thrice. At 3h twice. At 4h 8h twice tremulous. At 9h thrice. At 10h P.M. twice tremulous. At 11h twice affected.

for every Hour from 8 A.M. till Midnight, as indicated in the Table (for 7 Days).

Noon.	Tem.	1h P.M.	Tem.	2h P.M.	Tem.	3h P.M.	Tem.	4h P.M.	Tem.	Position of Needle.
′ ″	+	′ ″	+	′ ″	+	′ ″	+	′ ″	+	
1 43 E.	19 6	3 00 E.	19 2	1 34 W.	20 00	4 26 W.	21 8	7 08 W.	22 0	Suspended.

9h P.M.	Tem.	10h P.M.	Tem.	11h P.M.	Tem.	12h P.M.	Tem.
′ ″	+	′ ″	+	′ ″	+	′ ″	+
0 43 W.	21 4	0 00	20 5	0 17 W.	20 6	3 34 W.	19 5

moving. At 11h steady. At noon steady. At 1h P.M. steady. At 2h once moving. At 7h P.M. steady. At 8h once tremulous. At 9h steady. At 10h steady. At 11h

for every Hour from 8 A.M. till Midnight, as indicated in the Table (for 7 Days).

Noon.	Tem.	1h P.M.	Tem.	2h P.M.	Tem.	3h P.M.	Tem.	4h P.M.	Tem.	Position of Needle.
′ ″	+	′ ″	+	′ ″	+	′ ″	+	′ ″	+	
4 34 E.	15 10	2 25 E.	16 00	1 31 W.	16 43	8 43 W.	17 11	12 17 W.	17 03	Suspended.

9h P.M.	Tem.	10h P.M.	Tem.	11h P.M.	Tem.	12h P.M.	Tem.
′ ″	+	′ ″	+	′ ″	+	′ ″	+
8 25 W.	16 86	5 00 E.	16 78	5 15 W.	16 60	7 34 W.	16 78

1h P.M. twice. At 2h once. At 3h twice. At 4h once tremulous. At 7h P.M. once once. At 11h twice. At midnight once.

No. V. Containing the Mean Variation and Temperature observed at

Month.	Year.	8h A.M.	Tem.	9h A.M.	Tem.	Noon.	Tem.	1h P.M.	Tem.	2h P.M.	Tem.
		′ ″	+	′ ″	+	′ ″	+	′ ″	+	′ ″	+
Nov.	1833	40 24 E.	18 7	31 44 E.	18 7	2 32 E.	19 27	4 24 W.	19 10	0 16 E.	19 37
			+		+		+		+		+
Dec.	1833	52 44 E.	6 4	29 23 E.	5 09	3 05 E.	5 08	2 33 E.	6 00	1 04 E.	6 2
			−		−		−		−		−
January	1834	39 36 E.	24 50	28 23 E.	23 90	6 46 E.	23 1	2 17 E.	22 00	0 34 E.	22 1
			−		−		−		−		−
Feb.	1834	46 55 E.	9 4	32 32 E.	9 0	6 10 E.	8 0	2 08 E.	17 30	2 53 E.	5 00
			−		−		+		+		+
March	1834	32 30 E.	1 20	40 34 E.	1 00	8 29 E.	1 50	6 17 E.	2 30	5 27 E.	3 00
			+		+		+		+		+
April	1834	46 37 E.	10 50	36 24 E.	11 06	4 31 E.	13 40	0 53 W.	14 30	0 20 E.	15 30
			+		+		+				+
Nov.	1834	48 12 E.	14 29	40 26 E.	14 41	11 25 E.	14 70	6 25 E.	15 38	3 24 E.	15 55
			−		−		−		−		−
Dec.	1834	24 52 E.	29 90	33 44 E.	29 9	11 10 E.	28 4	0 25 W.	29 4	0 15 W.	29 2
			−		−		−		−		
January	1835	22 27 E.	17 9	23 23 E.	18 3	3 00 E.	17 9	0 52 W.	17 4	2 27 W.	17 2
			−		−		−		−		−
Feb.	1835	32 23 E.	23 2	25 47 E.	23 7	6 45 E.	21 9	3 42 E.	20 7	0 53 E.	19 0
			−		−		−		−		−
March*	1835	24 26 E.	18 1	29 46 E.	17 7	1 53 E.	14 4	0 33 W.	13 2	1 50 W.	12 5

* Only 18 Days in March.

No. VI. Showing the Number of Times the Needle was in Motion at the registering Hours.

Month.	Year.	8h A.M. No. of Times.	9h A.M. No. of Times.	Noon. No. of Times.	1h P.M. No. of Times.	2h P.M. No. of Times.	3h P.M. No. of Times.	4h P.M. No. of Times.	7h P.M. No. of Times.	10h P.M. No. of Times.	12h P.M. No. of Times.	Whole No. of Times in the Month.	Aurora visible.
Nov.	1833	13	10	18	16	9	6	19	12	18	16	137	14
Dec.	1833	15	18	7	6	14	6	12	17	15	17	121	15
Jan.	1834	8	10	7	12	5	2	6	9	3	16	78	28
Feb.	1834	6	8	16	16	10	3	3	3	8	8	81	14
March	1834	10	15	13	17	15	8	13	11	13	15	122	19
April	1834	7	15	13	13	12	7	7	3	2	9	88	22
Nov.	1834	4	8	10	11	5	3	7	4	8	16	76	15
Dec.	1834	7	17	12	8	6	4	3	4	5	14	80	28
Jan.	1835	4	9	14	12	1	0	1	3	4	19	67	19
Feb.	1835	3	15	12	14	5	2	7	5	6	13	82	21
March	1835	1	9	3	4	1	1	3	2	4	6	34	10
Whole Number of Times in Vibration at the respective Hours		78	134	125	129	83	42	81	73	86	149		

Fort Reliance, from 8 A.M. to Midnight, as indicated in the Table.

3h P.M.	Tem.	4h P.M.	Tem.	7h P.M.	Tem.	10h P.M.	Tem.	12h P.M.	Tem.	Position of Needle.
′ ″	+	′ ″	+	′ ″	+	′ ″	+	′ ″	+	Suspended.
0 32 W.	19 15	0 06 W.	19 3	6 06 E.	18 7	1 50 E.	18 6	4 38 W.	18 00	—
	+		+		+		+		+	
0 38 W.	6 8	2 13 E.	5 09	5 29 E.	5 00	0 07 E.	4 00	1 05 W.	4 08	—
	−		−		−		−		−	
0 25 E.	22 00	1 19 E.	22 2	7 19 E.	21 9	1 09 E.	22 2	0 21 E.	22 50	—
	−		−		−		−		−	
0 55 E.	6 7	4 06 E.	5 20	7 35 E.	5 60	10 45 E.	5 90	6 12 W.	6 30	—
	+		+		+		+		+	
1 15 E.	4 30	0 31 E.	5 00	1 02 E.	4 90	6 21 E.	4 10	3 33 W.	2 90	—
	+		+		+		+		+	
2 15 W.	16 50	3 20 W.	16 70	1 08 W.	17 00	1 08 E.	15 50	1 45 W.	14 04	—
	+		+		+		+		+	
4 02 E.	15 48	5 13 E.	15 07	7 09 E.	14 85	7 13 E.	14 48	6 22 E.	14 25	—
	−		−		−		−		−	
1 58 E.	29 00	0 36 W.	29 00	0 05 E.	29 00	1 19 W.	29 2	13 31 W.	29 4	—
	−		−		−		−		−	
2 48 W.	17 0	5 01 W.	17 1	2 11 W.	17 3	2 07 W.	17 4	1 29 W.	17 5	—
	−		−		−		−		−	
0 58 W.	18 6	4 57 W.	17 8	3 10 W.	18 3	11 49 W.	19 6	4 40 W.	20 3	—
	−		−		−		−		−	
2 23 W.	11 1	4 20 W.	10 40	1 10 W.	11 2	8 10 W.	12 7	5 53 W.	14 5	—

Altogether 3190 Observations.

No. IX.

A TABLE OF LATITUDES, LONGITUDES, AND VARIATIONS.

The Longitudes deduced are from the Mean of Three Chronometers.

Date.	Latitude, North.	Longitude, by Chronometer, West.	Variation.	Place of Observation.
1833.	° ′ ″	° ′ ″	° ′	
Aug. 16	62 45 35	111 19 52	45 31 E.	Near the mountain, north shore, Great Slave Lake.
19	62 50 15	109 47 54	36 52 E.	Mouth of Hoar Frost River.
22	63 23 46	108 08 16	36 00 E.	Lake Walmsley.
24	63 23 57	- -	- -	North end of Artillery Lake.
27	64 24 13	108 28 53	36 56 E.	Sand Hill Bay.
Sept. 1	64 40 51	108 08 10	44 24 E.	Musk Ox Rapid.
6	62 53 26	108 28 24	- -	South end of Artillery Lake.
	62 46 29	109 00 38·9	35 19 E.	Means of several sets at Fort Reliance.
1834.				
July 13	65 28 21	106 54 01	- -	Near Lake Beechy.
15	65 14 44	106 00 53	39 12 E.	North end of cascades.
17	65 09 12	103 33 08	30 06 E.	On island.
19	65 53 10	- -	- -	Lake Pelly.
20	65 48 04	99 40 46	29 38 E.	Lake Garry.
23	65 54 18	98 10 07	29 16 E.	Rock Rapid.
26	66 06 24	- -	- -	Mount Meadowbank.
29	67 07 31	94 39 45	By sun's bearing at noon 8 30 W.	Near the mouth of Thlew-ee-choh.
30	67 20 31	94 28 14	- -	Sir G. Cockburn's Bay.
31	67 41 24	95 02 16	6 00 W.	Point Beaufort.
Aug. 2	67 47 27	95 18 15	2 43 E. A.M. 6 42 W. P.M.	Montreal Island.
15	68 13 57	94 58 01	1 52 E. A.M. 1 46 W. P.M.	Point Ogle.

No. X.

Hudson's Bay House,
London, 22d Oct. 1833.

Angus Bethune, Esq.
Chief Factor, &c. &c.
Sault St. Mary's.

SIR,

I AM directed by the Governor and Committee to acquaint you, that the packet by which this is sent will be forwarded to your address in duplicate; one copy, *viâ* Montreal, to be transmitted from post to post by the Grand River, and the other by the American mail, to the care of the commanding officer of the garrison at St. Mary's. It contains letters for Captain Back, apprising him of the arrival of Capt. Ross in England; and it is of great importance that he should receive this information before his departure from his winter quarters.

I am therefore to request, that the copy which first reaches you be sent on to the next post by a couple of the most active men you can find, without the delay of one day at St. Mary's; and that it be forwarded in like manner, accompanied by this letter, with the utmost expedition, from post to post, *viâ* Mishipicoton, the Pic, Fort William, Lake La Pluie, *viâ* Riviere aux Roseau to Red River, thence to Fort Pelly, Carlton, Isle à la Crosse, Athabasca, and Great Slave Lake, until it reaches its destination; where, if due expedition be observed, it ought to arrive early in April.

The Governor and Committee further direct, that the officers at the different posts do not, on any pretence whatever, detain the packet; and desire that the date of the arrival at and departure from each post, signed by the officer in charge, be endorsed on the back hereof; and also, that the messengers from each post be instructed to proceed to the next, without attending to any directions they may receive to the contrary, from persons they may meet *en route.*

And when the second copy of this packet gets to hand at the Sault, let it be forwarded in like manner.

I am, Sir,
Your most obedient humble Servant,
W. SMITH,
SECRETARY.

Received at the Pic on the 7th of February, 1834, at 8 o'clock P.M.
Thomas M. Murray, C. T. H. B. Com.

Left the Pic on the 8th of February, at 6 o'clock A.M.
Thomas M. Murray.

Received at Long Lake on the 13th of February, 1834, at 11 o'clock P. M.
Peter M'Kenzie, Clerk H. B. Co.

Left Long Lake on the 14th of February at 5 o'clock A.M.
Peter M'Kenzie.

Received at Lake Nipigon on the 16th of February, 1834, at 10 o'clock P. M.
John Swanston, Clerk, H. H. B. Co.

Left Lake Nipigon on the 17th of February, at 5 o'clock A.M.
John Swanston, Clerk H. H. B. Co.

Received at Fort William the 21st of February, 1834, at 11 o'clock A.M., and left Fort William at 3 o'clock P.M. same date.
Donald M'Intosh, C. T.

Received at Bois Blanc on the 25th of February, 1834, at 1 o'clock P.M., and left Bois Blanc at 4 P.M., same day.

John M'Intosh, Clerk H. B. Co.

Received at Lac la Pluie on the 2d of March, 1834, at 6 A.M., and will leave this at 7 A.M. the same date.

William Sinclair, Clerk.

Received at Carlton on the 2d of April, 1834, 11 o'clock A. M., and will leave this at 1 o'clock noon, the same date.

J. P. Pruden, C. T.

Received at Fort Chipweyan 21st April, 1834, and will start at 3 o'clock on the 22d, A.M.

J. Charles, C. F.

Received.	Place.	Forwarded.	Name of Officer in Charge.
20th of Jan. at noon - -	Sault, St. Mary's	21st of Jan. - -	H. Bethune.
29th of Jan. afternoon -	Mishipicolm -	30th of Jan. - -	George Keith.
7th of Feb. at 8 P.M.	Pic - -	8th of Feb. 6 A.M. -	Thomas M. Muray.
	Fort William -		
2d of March, at 6 A.M. -	Lake la Pluie -	2d of March, 7 A.M.	William Sinclair.
12th of March, at 2 P.M. -	Red River -	13th of March, 6 A.M.	Alexander Christe.
25th of March, at 6 P.M. -	Fort Pelly -	26th of March, 6 A.M.	William Todd.
2d of April, at 11 A.M. -	Carlton - -	2d of April, 1 at noon	J. P. Pruden.
	Isle à la Crosse -	6th of April, 5 P.M.	R. M'Kenzie.
21st of April, at 4 P.M. -	Athabasca -	22d of April, 3 A.M.	John Charles.
29th of April, at 7 P.M. -	Great Slave Lake	30th of April, 4 A.M.	J. M'Donell, Clerk.

LIST OF SUBSCRIBERS

TO THE

ARCTIC LAND EXPEDITION,

UNDER THE COMMAND OF CAPTAIN GEORGE BACK, R. N., IN SEARCH OF CAPTAIN ROSS, R. N., AND HIS PEOPLE.

	£	*s.*	*d.*
GRANT from His Majesty's Government in aid of the Expedition	2000	0	0
The Right Honourable the Lord Mayor and Corporation of the City of London	105	0	0
The Elder Brethren of the Corporation of the Trinity House	100	0	0
The Committee of the Subscribers to Lloyd's	105	0	0
The Honourable the East India Company	100	0	0
The Council of the Royal Geographical Society	50	0	0
The Council of the Royal Society	113	12	0
The Mayor and Corporation of Portsmouth	10	10	0
Her Royal Highness the Duchess of Kent	20	0	0
His Grace the Duke of Northumberland	100	0	0
His Grace the Duke of Somerset	50	0	0
The Earl of Ripon	50	0	0
Admiral Lord de Saumarez	20	0	0
The Earl of Hardwicke	25	0	0
Lord Ashley	5	0	0
The Earl of Caledon	25	0	0
Earl Bathurst	10	0	0
The Lord Bishop of Durham	20	0	0
Lord Selsey	10	0	0
Lord Bexley	10	0	0
Lord Viscount Galway	1	1	0
Lady Galway	1	1	0
Lord Viscount Clive	20	0	0
The Earl of Dartmouth	20	0	0
The Marquis of Northampton	10	0	0
Lord Somerville	5	0	0

	£	s.	d.
The Lord Bishop of Cloyne	3	0	0
The Lord Bishop of Llandaff	5	0	0
Antrobus, Sir Edmund	25	0	0
Attwood, Wolverly	10	0	0
Aga, Selim	1	1	0
Athenæum, Editor of the	2	2	0
Ainsley, S. R., Esq.	10	0	0
Austin, Capt. H., R. N.	2	0	0
Arrowsmith, J., Esq.	2	2	0
Acland, Sir T. Dyke, Bart.	20	0	0
Angerstein, John, Esq.	25	0	0
Adair, John, Esq.	25	0	0
A. B., per Editor of the Sun	10	0	0
Arbuthnot, George, Esq.	5	0	0
A Lady	1	0	0
A Wellwisher	2	0	0
A Lady, per Willis and Co.	5	0	0
A Lady, per ditto	5	0	0
A. T.	2	2	0
A Messenger in a Life Office	0	5	0
Anonymous (a Lady)	0	5	0
Allison, W., Esq. (of Tugwell)	5	0	0
Alsager, Mrs. (collected by her); paid by Capt. Alsager, M. P.	11	0	0
Anonymous (through Horticultural Society)	0	10	0
Booth, Sir Felix, Bart.	100	0	0
Baillie, George, Esq.	5	0	0
Baillie, Thomas, Esq.	5	0	0
Back, Charles, Esq.	5	0	0
Bowles, Capt. Wm., R. N.	5	0	0
Beaufoy, Henry, Esq.	52	10	0
Beverley, Mrs.	3	0	0
Beverley, C. J., Esq.	10	0	0
Baillie, Wm. H., Esq.	5	0	0
Brady, Lieut., R. N.	0	5	0
Brockedon, W., Esq.	2	2	0
Barrell, Capt., R. N.	2	0	0
Bedford, G., Esq.	2	0	0
Beechey, Capt., R. N.	1	0	0
Broke, Sir P., Bart.	20	0	0
Beaufort, Capt., R. N.	5	0	0
Brazier, Capt., R. N.	1	1	0

	£	s.	d.
Baron, N. J., Esq.	5	0	0
Bosanquet, The Hon. Mr. Justice	10	10	0
Brown, Thos. P., Esq.	1	1	0
Bunnatt, Capt., R. N.	1	0	0
Barwis, W. H. B., Esq.	1	0	0
Briggs, Samuel, Esq.	10	0	0
Beverley, E. Parry, Esq.	1	0	0
Bourchier, Charles, Esq.	2	0	0
Bromley, Lady Louisa	1	0	0
Bromley, the Reverend W. D.	1	0	0
Barrow, John, Esq.	5	0	0
Brine, Captain G., R. N.	1	1	0
Boskett, John, Esq.	5	5	0
Botfield, Thomas, Esq.	5	0	0
Backhouse, John, Esq.	5	5	0
Bourchier, Captain Thomas	1	1	0
Birch, J., Esq.	5	5	0
Beatty, Sir William	1	1	0
Byron, Captain C. B., R. N.	1	1	0
Brine, Captain A., R. N.	1	0	0
Brine, The Reverend A. James	1	0	0
Blackeston, Captain T.	2	2	0
Barlow, Peter, Esq.	1	1	0
Buller, John, Esq.	10	0	0
Biggs, Robert, Esq.	1	0	0
Baynes, Lady	0	5	0
Burgess, Miss Caroline	5	0	0
Brenton, Captain E. P., R. N. (sundry Collections)	0	12	6
Baring, Thomas, Esq.	5	0	0
Buck, John, Esq.	1	1	0
Browneker, John, Esq.	1	1	0
Blackburn, Charles, Esq.	1	0	0
Baber, T. H., Esq.	5	0	0
Brown, Lieutenant James, R. N.	0	5	0
Bruce, Mr. W., Surgeon, R. N.	1	1	0
Butcher, Lieutenant Jonathan, R. N.	0	5	0
Buckler, Mr. W.	0	1	0
Brooke, Sir Arthur de C.	5	0	0
Bremen, In honour of	1	1	0
Box and Son, Messrs.	1	1	0
Bourne, The Reverend R. B.	2	2	0
Blair, Mr. Lambert	15	0	0
Blair, James, Esq.	25	0	0
Blair, Mr.	10	0	0
Bird, Lieutenant E. G.	2	0	0

	£	s.	d.
Bourne, William, Esq.	1	0	0
Belcher, Captain Edward, R. N.	1	1	0
Browne, Mr. (Chester Terrace)	10	0	0
Beverley, Mr.	12	6	0
Cockburn, Admiral Sir George	20	0	0
Capel, Admiral Sir T. B.	2	0	0
Collard, F. W., Esq.	1	0	0
Cook, Mr.	1	0	0
Courier, Proprietors of the	5	5	0
Cook, Captain H., R. N.	1	0	0
Cains, or Cranes, Mr. Richard	0	5	0
Cumber, Mr. James, senior	1	0	0
Carr, Miss	1	1	0
Cox, W. R., Esq.	5	0	0
Conran, J., Esq.	1	0	0
Crauford, W. P., Esq.	2	0	0
Cornan, Captain George	1	0	0
Clark, Captain, R. A.	1	1	0
Crosby, Mr. John, junior	1	0	0
Campbell, F. W., Esq.	2	2	0
Cannon, Lieutenant J., R. N.	0	10	0
Clifford, Sir Augustus	1	0	0
Cock, Simon, Esq.	2	0	0
Clowes, Mr.	2	0	0
Colquit, Captain, R. N.	1	0	0
Craggs, William, Esq.	2	2	0
Curzon, The Honourable Admiral Henry	5	0	0
Carr, H. B., Esq.	1	1	0
Colby, Colonel	1	1	0
Clay, William, Esq., M. P.	5	5	0
Carruthers, David, Esq.	2	2	0
C. M.	1	0	0
C. T. B.	2	0	0
Chantry, F., Esq.	10	0	0
Cotton, William, Esq.	5	5	0
Crighton, Mr. William	0	5	0
Clark, Daniel, Esq.	1	1	0
C. W., The Reverend (Banwell)	2	0	0
Campion, Jeremiah, Esq.	1	0	0
Colquhoun, Captain, R. N.	2	2	0
Comerford, James, Esq.	4	3	0
Caley, Sir G.	5	0	0
Coulman, Mrs. (per William Spence, Esq.)	1	0	0

	£	s.	d.
Coulman, Robert John, Esq. (per W. Spence, Esq.)	1	0	0
Coulman, Mrs. Robert John (ditto)	1	0	0
Dalrymple, Sir A. J., Baronet	20	0	0
Davis, M., Esq.	1	1	0
Douglas, Admiral J. E.	2	0	0
Davenport, Davies, Esq.	10	0	0
Duncan, The Honourable Captain Henry, R.N.	5	5	0
Drummond, Lieutenant, R. E.	1	1	0
Dawes, Peter, Commander, R. N.	1	1	0
Dundas, David, Esq.	1	1	0
Dixon, Charles, Esq.	5	0	0
Duffy, Colonel	1	1	0
D. H.	1	1	0
Douglas, Admiral James	5	0	0
Denham, Lieutenant, R. N.	1	1	0
Dufour, James or Joseph, Esq.	1	0	0
Duff, Captain A., R. N.	2	2	0
Devaux, Charles, Esq.	1	0	0
Devis, The Reverend Mr.	1	1	0
Dowell, Mr. George, R. N.	0	5	0
Dean, H., Esq.	1	0	0
Droop, J. A., Esq.	1	1	0
Dalby, Captain	0	2	6
Doran, Captain	1	1	0
Dixons and Sons (remitted by)	10	0	0
Dixon, W., Esq. (Blackheath)	1	1	0
Drysdale, W. C., Esq.	5	0	0
Dundas, The Honourable Captain Henry	30	9	0
D.	1	0	0
Enderby, C. H., Esq.	10	0	0
Effendi, Omar	1	1	0
Everard, Mr. W.	1	1	0
Edgworth, Miss A.	2	0	0
Edmonds, John, Esq.	1	1	0
E. M.	1	1	0
Edgar, Thomas, Esq.	1	1	0
Edwards, Admiral S.	3	3	0
Edwards, Captain Richard	2	2	0
Edwards, Lieutenant S.	1	1	0
Enterprise (a Brother Sailor)	1	0	0
Ewart, Taylor, and Co., Messrs.	5	0	0
Edgworth, C. S., Esq.	1	0	0
E. S.	1	0	0

	£	s.	d.
Elphenston, J. F., Esq.	5	0	0
Eccles, Mr.	0	1	0
Exeter (Remainder of Subscription)	6	1	0
Elliott, Captain Thomas (Whitehaven)	1	0	0
Edgell, Captain, R. N.	0	10	0
Eley, Mrs.	1	0	0
Fletcher, Son, and Teurnal, Messrs.	50	0	0
Fletcher, Joseph, Esq.	50	0	0
Frazer, Colonel Sir A.	5	0	0
Fane, Captain F. W., R. N.	5	0	0
Finnies, The Honourable W. Twisleton	5	5	0
Franklin, Captain Sir John, R. N.	5	0	0
Farraday, Michael, Esq.	1	1	0
Forbes, J. H., Esq.	1	1	0
Forbes, Captain Henry	1	0	0
Fleming, Captain R. H., R. N.	5	0	0
Fuller, William, Esq.	5	0	0
Fowler, Captain, R. M.	5	0	0
F. J.	1	1	0
Five kind-hearted Children	1	0	0
Fisher, Captain Peter	1	0	0
Forbes, John, Esq.	1	1	0
Fisher, Captain, R. N. (Subscription from Yarmouth)	5	0	0
Grimble, William, Esq.	10	10	0
Gutzner, Lieutenant, R. A.	1	1	0
Grant, Alexander, Esq.	5	0	0
Gosse or Gape, Henry, Esq.	1	0	0
Garry, Nicholas, Esq.	20	0	0
Gray, Miss E. J.	1	0	0
Gray, Miss M. E.	1	0	0
Gandy, Edward, Esq.	2	2	0
Greer or Green, Lieutenant, R. N.	1	1	0
Gallop, G. J., Esq.	1	1	0
Gatskell, John, Esq.	1	0	0
Gray, F. A., Esq.	3	3	0
Gwilt, J., Esq.	1	1	0
Gillot, Mr.	1	0	0
Graham, Charles, Esq.	1	0	0
Greyhurst, Miss	0	0	0
Grindall, Captain H. E. P., R. N.	1	0	0
Gilbert, Mrs. M.	2	0	0
Gardner, Lieutenant James	5	5	0

	£	s.	d.
Gardner, Lieutenant James (Sundries by)	3	7	6
G. H. F.	5	0	0
Gordon, A. Durnford, Esq.	20	0	0
Gerningham, J., Esq.	1	1	0
Gladdish, William, Esq.	5	0	0
Gooby, The Reverend James	2	0	0
Gillespies and Co., Messrs.	10	10	0
Gurney, Hudson, Esq.	21	0	0
Greenwood, John, Esq.	1	0	0
Hotham, Admiral Sir William	20	0	0
Hotham, Admiral Sir Henry	20	0	0
Hay, R. W., Esq.	20	0	0
Hooper, W. H., Esq.	1	0	0
Hibbert, Captain W.	1	1	0
Halford, The Reverend J.	2	0	0
Hoppner, Captain, R. N.	1	0	0
Humphrys, Robert, Esq.	1	0	0
Humphrys, Harry, Esq.	1	0	0
Hannay, James, Esq.	5	0	0
Hodson, Lieutenant-General John	2	2	0
Hardwick, John, Esq.	2	0	0
Holford, Robert, Esq.	20	0	0
Humphry, E. and S.	5	0	0
Hargood, Admiral Sir William	5	0	0
Humbert, T. J., Esq.	5	0	0
Hockings, Captain Robert, R. N.	1	1	0
Hepburn, General Francis	2	0	0
H.	5	0	0
Henniker, The Honourable Captain and Mrs.	2	0	0
Hyett, W. H., Esq.	1	0	0
Hallewell, E. G., Esq.	1	0	0
Hammond, Sir G. E.	2	0	0
Hope, Captain H., R. N.	1	1	0
H. L. H.	1	1	0
Hollier, Richard, Esq.	1	1	0
Hugonon, Mrs. General	5	0	0
Hooker, Professor Dr. W. J.	10	0	0
Honeycroft, or Thornycroft, The Reverend C.	1	0	0
Hartford, Charles R., Esq.	1	1	0
Hobson, Joshua, Esq.	5	0	0
Hamilton, Miss M. A.	2	0	0
Hall, Colonel W.	2	0	0
Hare, Mr. Marcus, R. N.	0	10	0
Hare, Miss and Miss M. A.	1	0	0

	£	s.	d.
Hillier, Commander W. C.	0	8	6
Hodgson, M. W. T., R. N.	0	7	0
Halket, John, Esq.	5	0	0
Hall, The Reverend J.	5	5	0
Hall, The Rev. J. F. (Balance of Subscription)	0	3	0
Hamilton, Captain (of Craiglaws)	5	0	0
Hazard, John, and Co., Messrs.	10	10	0
Jackson, Captain	1	0	0
Jerdin, W., Esq.	2	0	0
Jones, R. S., Esq.	1	1	0
Jameson, Joseph, Esq.	5	0	0
Jackson, W. H., Esq.	1	1	0
Jones, Lieutenant W. J., R. N.	1	0	0
Jones, Charles, Esq.	2	0	0
J. L.	1	0	0
Inglis, Sir R. H., Baronet	5	0	0
Jervois, Captain	5	0	0
Janson, Messrs. A., and Co.	2	2	0
Jackson, Miss	2	0	0
Jekyll, Captain John, R. N.	1	1	0
Journeymen Printers at Mills and Co.'s	0	7	0
Jackson, H. H., Esq.	1	1	0
J. B.	2	2	0
Keats, Admiral Sir Richard	20	0	0
K. T., or T. K.	0	10	0
Kolounoff, M., fait à Paris par			
Le Comte de Demidoff 200 f. (by Wm. Spence, Esq.)			
Madame Baudin 20 (ditto)			
Monsieur Thernessen 26 (ditto)			
Le Normand & Co. 5 Ex. 25 80 pour	9	14	7
Kerr, Neven, Esq.	10	10	0
Kater, Captain Henry, R. N.	5	0	0
Kingdom, John, Esq.	1	0	0
Knight, W. P., Esq.	1	0	0
King, Admiral Sir Richard	2	0	0
Kidd, R. C., Esq.	1	0	0
Kinloch, James, Esq.	20	0	0
Luckcombe, M., Esq.	1	0	0
Lindsay, The Honourable Hugh	10	0	0
Lane, The Reverend Charles	5	0	0
Light, Thomas, Esq.	1	1	0
Lax, James, Esq. (Bristol)	10	10	0

	£	s.	d.
Lee, Dr., F. R. S.	1	1	0
Lloyd, W. H., Esq.	1	0	0
Laforey, Admiral Sir Francis	5	0	0
Leake, William, Esq.	20	0	0
Larcom, Lieutenant, R. E.	1	1	0
Lambert, Charles, Esq.	5	0	0
Lambert, Collman, or C. Lambert	2	0	0
Long, The Reverend W.	5	0	0
Lambert, Admiral	2	0	0
Lambert, Mrs.	1	0	0
Lambert, Mr. George	0	5	0
Longman and Co., Messrs.	5	5	0
Lay, Mrs.	1	0	0
Lemmé, or Lucerné, T. L.	2	2	0
Lay, Miss and Miss J.	1	0	0
Lihou, Captain, R. N.	1	0	0
Lean, Mr. John Samuel	0	5	0
Langdon, Captain J.	2	2	0
Ladies (collected by)	4	4	0
Ditto (ditto)	4	10	0
Leake, William Martin, Esq.	5	0	0
Marsden, William, Esq.	10	0	0
Montefiore, Moses, Esq.	10	0	0
M'Culloch, Robert, Esq.	5	0	0
Mitchell, Henry, Esq.	1	0	0
Mangles, Captain J., R. N.	3	0	0
Magrath, E., Esq.	1	1	0
Meek, John, Esq.	1	1	0
Morris, C., junior, Esq.	20	0	0
Morris, Mrs. Charles	10	10	0
Morris, Miss	2	2	0
Maconochie, Captain, R. N.	1	0	0
Michael, Lieutenant-Colonel E., R. A.	5	0	0
Maw, Lieutenant H. L., R. N.	2	0	0
Maraillier, Jacob, Esq.	2	2	0
Mangles, John, Esq.	2	2	0
Murphy, Lieutenant, R. E.	1	1	0
Mangles, Robert, Esq.	1	1	0
Martin, Josiah, Esq.	5	0	0
Martin, Captain W. F., R. N.	2	2	0
Manley, Admiral	10	0	0
Martin, Admiral Sir Thomas Byam	5	0	0
Murcheson, R. J., Esq.	5	0	0
M'Kinlay, Admiral	1	0	0

	£	s.	d.
M'Kenzie, John, Esq.	1	0	0
Moore, John, Esq.	5	0	0
Mackenzie, The Right Honourable Holt	5	5	0
Martin, Sir Henry	5	5	0
Mudge, Captain, R. E.	1	1	0
Murdoch, Thomas	5	0	0
Martin, Captain T., R. N.	2	2	0
Martin, The Reverend William	1	1	0
Marshall, L. J., Esq.	1	1	0
Messiter, Mr.	1	1	0
Munstings, or Murrislings, Mrs.	2	0	0
M. E., or P. M. E.	8	0	0
Moresby, Mr.	0	2	6
Mitchell, Mr. W.	0	1	0
Michael, Miss Mary	0	5	0
Murray, John, Esq.	5	0	0
M'Donald, James, Esq.	3	0	0
M. E. (Shilling Subscriptions)	5	5	0
Maitland, Miss	6	0	0
Marsden, Mrs. (by Wm. Spence, Esq.)	1	1	0
Marsden, Mr. (ditto)	1	1	0
Marsden, Mr., junior (ditto)	1	1	0
Nicholson, Mr. Robert, Manchester	0	10	6
Nautical Magazine, Proprietors of the	1	1	0
Nicholson, Mr.	2	0	0
Napier, Richard, Esq.	1	0	0
Napier, Mrs.	1	0	0
Nettleship, Samuel, Esq.	1	1	0
Nettleship, Thomas, Esq.	1	1	0
Nicholson, G. T., Esq.	5	0	0
Newenham, Lieutenant J. P.	1	0	0
Nottige, W., Esq.	2	2	0
Newton, William, Esq.	2	2	0
Name unknown	20	0	0
Nicholson, Sir F.	5	0	0
Ogle, Admiral Sir Charles, Bart.	20	0	0
Otway, Admiral Sir R. W.	1	0	0
Owen, Admiral Sir E.	10	0	0
Outram, Dr., R. N.	5	0	0
Otty, The Reverend G. F.	1	0,	0
Otto, Colonel	1	0	0
Ommanney, Sir Francis	8	6	0
Oliverson, Thomas, Esq.	5	0	0

	£	s.	d.
Oxford (collected by Ladies)	4	13	6
Old Windsor (ditto)	2	0	0
Paget, Admiral the Honourable Sir Charles	2	0	0
Parkinson and Fordham, Messrs.	10	10	0
Phillips, James, Esq.	1	0	0
Phillips, Henry, Esq.	1	0	0
Phillips, Thomas, Esq.	1	1	0
Palmer, Henry, Esq.	5	5	0
Pasley, Colonel C. W.	5	0	0
Putman, James, Esq.	10	0	0
Prowse, Captain W. J., R. N.	3	0	0
Prescott, Captain, R. N.	1	1	0
Pechell, Captain, R. N.	5	0	0
Pepys, Sir W. Waller	5	5	0
P. O.	1	8	0
Penrhyn, Edward, Esq.	1	0	0
Parry, Captain Sir Edward, R. N.	5	5	0
Purdy, Charles, Esq.	1	0	0
Perie, John, Esq.	2	0	0
Powell, J. C., Esq.	1	0	0
Pelham, or Pillman, Lieutenant W., R. N.	1	1	0
Prosser, E., Esq.	2	0	0
Pascoe, The Reverend Thomas	2	2	0
Packwood, Captain Joseph, R. N.	1	0	0
Prowse, Colonel G. B.	5	0	0
Pym, F., Esq. (by William Spence, Esq.)	2	0	0
Quickall, or Quicknall, E., Esq.	0	5	0
Quarantine Department, Milford	7	6	0
Ross, George, Esq.	100	0	0
Ross, George Clarke, Esq.	100	0	0
R. P.	5	0	0
Richardson, Dr. John	2	0	0
Ripley, Captain P. or J.	2	0	0
Robe, Captain, R. E.	1	1	0
Ramsden, Mr. Richard	1	1	0
Rumsey, Lacy, Esq.	1	1	0
Rubbergall, Mr. Thomas	0	10	0
Robinson, Henry, Esq.	1	0	0
Robinson, Edward, Esq.	1	0	0
Ross, Miss (per Admiral Lambert)	0	5	0
Raynardson, Miss J.	1	0	0
Robarts, Messrs., and Co.	5	0	0

	£	s.	d.
R. H.	1	0	0
Roy, The Reverend Doctor	3	3	0
Roy, Richard, Esq.	3	3	0
R. G. P. (by William Spence, Esq.)	0	10	0
R. M. P. (ditto)	0	10	0
R. N. P. (ditto)	0	10	0
R. H. (ditto)	0	10	0
R. D.	2	2	0
Reynolds, G. S., Esq.	0	10	0
Rolles, Admiral Robert	5	0	0
Rennell, T. T., Esq.	2	0	0
Ross, Sir. H. Dalrymple, Bart.	10	0	0
Robinson, Walter F., Esq.	1	1	0
Shaw, Sir James, Bart.	20	0	0
Sturgeon, C., Esq.	2	0	0
Solley, R. H., Esq.	5	0	0
Spence, William, Esq.	2	2	0
Spence, Mrs. William	2	2	0
Spence, Master	1	1	0
Smith, Captain J. B., R. N.	1	0	0
Sotheby, Captain, R. N.	2	0	0
Simmons, R., Esq.	10	10	0
Stirling, William, Esq.	1	0	0
Stirling, Walter, Esq.	1	0	0
Solly, Mr.	1	0	0
Sharpe, Doctor or Daniel	1	0	0
Smith, Mrs.	1	0	0
Strachan, William, Esq.	2	0	0
Smyth, Captain	1	1	0
Sutherland, Doctor	5	5	0
Scott, Admiral Sir George	2	2	0
Stuckey, P. or V., Esq.	1	0	0
Sotheby, William, Esq.	5	0	0
Stevens, George, Esq.	1	1	0
Scott, James, Esq.	1	1	0
Smith, Mr.	2	2	0
Smith, Mr. J.	1	1	0
Smith, Mr. W.	1	1	0
Stone, Mr. William	1	1	0
Spene, William, Esq.	5	0	0
Scott, Mrs. Elizabeth (Canterbury)	5	0	0
Shiffner, Captain	2	0	0
Selwyn, The Reverend William	1	1	0
Smith, or South, Sir James	1	1	0

	£	s.	d.
Sewell, Sir John	3	3	0
Sykes, Captain A. N.	5	0	0
Stopford, Captain E., R. N.	1	0	0
Spence, Captain, R. N.	1	0	0
Stanley, The Reverend Edward	3	0	0
Stanley, Lieutenant Owen, R. N.	2	0	0
Saumarez, General Sir Thomas	5	5	0
Stapleton, Colonel John	1	0	0
Scott, Miss (of Thorp)	1	0	0
Shepherd, Captain William	0	10	6
Smith, Samuel, Esq.	1	1	0
Sundries, per Messrs. Stuckey and Co.	2	8	0
Snook, Mrs.	2	2	0
Seddon, or Liddon, Lieutenant J. R., R. N.	0	5	0
Shepherd, George, Esq.	0	10	0
Sattersthwait, J. C. (of the Lancaster Bank)	14	9	0
Swaffield, Joseph, Esq.	5	0	0
Scott, Mr.	0	10	0
Sykes, Mrs. J.	1	0	0
Seymour, Captain Sir George	2	0	0
Stapleton, Miss A.	1	0	0
Sabine, Captain	5	0	0
Sundry small Subscriptions paid in by Captain M. C.	0	12	0
Saffron Walden (collected by Ladies)	3	0	0
Sundry Subscriptions paid into the house of Messrs. Spooner, Attwood, and Co., and no names given	23	10	6
Sundry Subscriptions paid into the house of Messrs. Drummonds, by Mr. Ross, without names	53	1	0
Trotter, Sir Coutts, Bart.	25	0	0
Thorburn, ——, Esq.	1	1	0
T. T.	10	0	0
Turner, Thomas, Esq.	5	0	0
Trevelyan, W. J., Esq.	10	0	0
Thornton, Captain S.	1	0	0
Tregear, V., Esq. R. N.	1	0	0
Townley, The Reverend Gale	5	0	0
That, or Thal, John, Esq. (St. Petersburgh)	1	1	0
Todd, Colonel James, E. I. C.	3	3	0
Taylor, Andrew, Esq.	2	2	0
Tudor, H. Dalison, Esq.	1	0	0
Thompson, Alderman, M. P.	5	0	0

	£	s.	d.
T. M.	1	0	0
Thompson, James, Esq.	2	0	0
Thompson, C. J., Esq.	5	0	0
Tucker, Lieutenant	1	1	0
Tobin, Captain George	2	2	0
Thompson, Thomas, Esq.	2	0	0
Twopenny, E., Esq.	1	0	0
Tomlinson, Thomas, Esq. (by W. Spence Esq.)	1	0	0
Vincent, G. G., Esq.	1	0	0
Vane, Colonel and Mrs.	3	3	0
Vincent, G. G., Esq. (second subscription)	1	1	0
Warburton, Thomas, Esq.	5	0	0
Wyattville, Sir Jeffery	5	0	0
Warburton, Doctor	5	0	0
Willich, C. W., Esq.	1	1	0
Walford, Thomas, Esq.	1	1	0
Walford, A., Esq.	1	1	0
Walford, Mrs. A.	1	1	0
Westby, Edmund, Esq.	2	0	0
Wainwright, Lieutenant, R. N.	1	1	0
Willoughby, Captain Sir N. J.	2	2	0
Westrop, Lieutenant Berkeley, R. N.	0	10	0
Williams, The Reverend Doctor (Winchester)	2	2	0
Washington, Lieutenant, R. N.	1	0	0
Walker, Lieutenant J. B., R. N.	5	0	0
Wormald, John, Esq.	5	0	0
Wood, James, Esq.	5	0	0
Wardlaw, Andrew C., Esq.	1	1	0
Williamson, Captain, R. N.	1	0	0
Wyatt, Henry	1	0	0
Willoughby, Sir Nesbet	3	3	0
Watts, Lieutenant R., R. N.	1	0	0
Williams, Doctor (by William Spence, Esq.)	1	1	0
Williams, Mrs. (by Admiral Lambert)	0	5	0
Willis, Mr. Francis	2	2	0
Wilson, L. P., Esq.	2	2	0
Wheatley, Commander, R. N.	1	0	0
Worthington, Miss	0	10	0
Winners at Cards	1	1	0
Walker, Thomas, Esq.	1	0	0
Warren, Mr. J. S.	0	5	0
Wrottesley, John, Esq.	5	0	0
Wake, Miss C.	5	0	0

	£	s.	d.
W. A.	5	5	0
Williams, Mrs. (per R. W. Hay, Esq.)	5	0	0
Williams, Sir Thomas, G. C. B.	5	0	0
W. W.	1	0	0
Young, Murdo, Esq.	2	2	0
Yarrall, William, Esq.	2	0	0
Young, William, Esq.	1	1	0

BATH. *Transmitted by James Hannay, Esq.*

Richard Saummarez, Esq.	2	0	0
The Reverend W. Fremenhere	1	0	0
Joseph Wilkinson, Esq.	1	0	0
William Sutcliffe, Esq.	1	0	0
	5	0	0
Less expense of Advertisements	1	0	0
	£4	0	0

DEVONPORT. *Transmitted by Walter Reid and Henry Gandy, Esqrs.*

Admiral Sir Manley Dixon	5	0	0
Captain Curry, of H. M. S. San Josef	1	0	0
T. Woodman, Esq., R. N.	0	10	0
Commander Hamilton, H. M. S. Comus	0	10	0
Commander Haydon	0	10	0
Lieutenant Haydon	0	10	0
Doctor Dunning	1	0	0
Captain Wise, R. N.	1	0	0
Henry Gandy, Esq.	1	0	0
Walter Reid, Esq.	1	0	0
Captain Manley H. Dixon, R. N.	0	10	6
Doctor Shepperd, Stonehouse	0	10	0
Anthony Brady, Esq., Plymouth	1	0	0
Several small Sums	0	19	6
Captain John Pearce, R. N.	0	10	0
Captain George Tincombe, R. N.	0	10	0
Mr. Couch, Dock Yard	0	2	6
	£16	2	6

DUMFRIES. *Transmitted by John Commelin, Esq.*

Alexander M'Culloch, Esq.	10	10	0
Thomas Affleck	0	2	6
Andrew Hunter	0	2	6

	£	s.	d.
H. R. Douglas	0	2	6
Andrew Mackinnell	0	2	6
James Robertson	0	2	6
A. Hannay	0	2	6
	£ 11	5	0

EDINBURGH. *Transmitted by Sir William Forbes and Co.*

George Forbes, Esq.	2	2	0
Adam Hay, Esq.	2	2	0
John Blair, Esq.	1	1	0
John Mackay, Esq.	1	1	0
Miss C. T.	1	1	0
A Lady	0	5	0
Doctor Maclogan	1	1	0
James Mackenzie, Esq., W. S.	1	0	0
Miss Mackenzie	1	0	0
S. and C. Wood	10	0	0
Lieutenant Campbell, R. N.	1	0	0
Lieutenant Hunn, R. N.	1	0	0
J. Stenhouse (per the Commercial Bank)	1	1	0
Edward Piper, Esq.	2	2	0
A Family in Caithness, per British Linen Company	7	7	0
Alexander Cowan, Esq.	1	0	0
Eagle Henderson, Esq.	1	1	0
Trinity House, Leith	10	10	0
Captain Aitcheson, R. N.	3	0	0
A. Kirkcaldy (per Thomas Milles)	25	17	6
Anonymous (per Penny Post)	1	0	0
William Boyd, Esq.	1	1	0
Alexander Pearson, Esq.	2	2	0
Professor Forbes	1	0	0
Thomas Corrie, Esq.	3	3	0
Interest at 2 per cent.	0	2	0
	£ 82	19	6

Transmitted by Robert Allan and Son	£ 103	11	9	
Subscriptions at Stranraer included in the above and printed in this List	53	15	0	
				£ 49 16 9

N. B. — No list of subscriptions received. £ 30 9*s.* subscribed at Dundee, probably included in this £ 49 16*s.* 9*d.*; but neither any list from thence.

CHELTENHAM.

	£	s.	d.
Transmitted by Messrs. Pitt and Co.	42	2	0

N. B. — No list of subscriptions received.

EXETER. *Transmitted by the Reverend William Scoresby.*

John Neave, Esq.	2	2	0
Joseph Were, Esq.	1	1	0
S. Parr, Esq.	1	1	0
John Milford, Esq.	1	0	0
Samuel Barnes, Esq.	1	1	0
William Nation, Esq.	1	1	0
J. B. Cresswell, Esq.	1	0	0
The Reverend William Scoresby	1	0	0
A Well-wisher	1	0	0
	£ 10	6	0
Less expenses	0	6	0
	£ 10	0	0

HULL. *Transmitted by William Spence, Esq.*

Messrs. Joseph Sykes and Son	5	0	0
Thomas Jackson, Esq. (Ferriby)	5	0	0
John Smith, Esq. (Kirkella)	5	0	0
John Terry, Esq.	5	0	0
Edward Spence, Esq.	5	0	0
Thomas Rodmill, Esq.	2	0	0
Messrs. Buckington, Wilson, and Co.	2	0	0
Messrs. Holderness and Chilton	2	2	0
Simon Horner, Esq.	2	0	0
William Laverack, Esq.	1	0	0
Thomas Thomson (Humber Dock)	1	0	0
John Todd, Esq. (Wright Street)	1	0	0
John Craven, Esq.	1	0	0
William Walker (Warehouseman)	1	0	0
Mrs. Daniel Sykes	1	0	0
T. W. Palmer, Esq.	1	0	0
Dr. Chambers	0	10	0
G. B. Lambert, Esq.	0	10	0
John Bennett, Esq.	0	10	0
J. T. Foord, Esq.	0	10	0
Joseph Sanderson, Esq.	0	10	0
William Brownlow, Esq.	1	0	0
John Aitkin, Esq.	0	10	0
	£ 44	2	0

GLASGOW. *Transmitted by James Leechman, Esq.*

	£	s.	d.
Honourable James Ewing, Lord Provost and M. P. for the City	10	10	0
James Martin, Esq.	2	2	0
Hugh Cogan, Esq.	2	2	0
John Sommerville, Esq.	2	2	0
William Maclean, Esq.	1	1	0
James Hutchison, Esq.	2	2	0
Archibald Maclellan, Esq.	1	1	0
Very Reverend Principal Macfarlan	2	2	0
Sir D. K. Sandford	1	1	0
Henry Monteith of Carstairs, Esq.	10	0	0
James Smith of Jordanhill, Esq.	5	5	0
William Macdowall of Garthland, Esq.	5	5	0
Robert Napier, Esq., Civil Engineer	5	5	0
William Dunn, Esq. of Duntocher	5	5	0
Colin Campbell, Esq. (Possil)	5	5	0
James Nimmo, Esq.	1	1	0
John Wood, Esq. (Port Glasgow)	1	0	0
James Leechman, Esq.	2	2	0
William Leechman, Esq.	2	2	0
Thomas Edington, Esq.	2	2	0
Charles Hutcheson, Esq.	2	2	0
William Bennet, Esq. (Free Press Office)	1	1	0
William Meikleham, junior, Esq.	2	2	0
Archibald G. Lang, Esq.	2	2	0
Thomas Atkinson, Esq.	1	1	0
Matthew Brown, junior, Esq.	3	3	0
Professor Ramsay	1	1	0
David Chapman, Esq.	1	1	0
James Thompson, Esq.	1	1	0
Henry Miller, Esq.	1	1	0
Robert Bartholemew, Esq.	2	2	0
John Bartholemew, Esq.	2	2	0
Thomas Bartholemew, Esq.	2	2	0
Archibald G. Kielston, Esq.	1	1	0
Andrew Liddell, Esq.	1	1	0
Robert Douglas Alston, Esq.	2	2	0
Archibald Smith, Esq.	1	1	0
James Buchanan, Esq. (Queen Street)	2	2	0
James Finlay, Esq.	2	2	0
Robert Woodrow, Esq.	1	1	0
M. M. Patteson, Esq.	1	1	0
Alexander Fletcher, Esq.	1	1	0

	£	s.	d.
George Ross Wilsone, Esq.	1	1	0
John Crum, Esq.	1	1	0
Walter Crum, Esq.	1	1	0
John Bryce, Esq.	1	1	0
George Buchanan, Esq., D. H.	2	2	0
Andrew Jamieson, Esq.	2	2	0
J. Gumprecht, Esq.	1	1	0
John Anderson, Esq.	1	1	0
Charles Stirling, Esq.	1	1	0
William Leckie Ewing, Esq.	1	1	0
David Ferguson, Esq.	1	1	0
The Reverend John Forbes	1	1	0
John Alston, Esq.	1	1	0
Walter Buchanan, Esq.	1	1	0
William Smith, Esq.	2	2	0
James Campbell, Esq. — J. C., Son, and Co.	2	2	0
James Brown, Esq.	1	1	0
W. G. Anderson, Esq.	1	1	0
George Hunter, Esq.	1	1	0
John Loudoun, Esq.	1	1	0
Robert Kinnier, Esq.	1	1	0
William Hamilton, Esq.	1	1	0
Archibald Bogle, Esq.	1	1	0
John Downie, Esq.	1	1	0
James Donaldson, Esq.	2	0	0
James Dennistoun, Esq.	2	2	0
Messrs. R. Dalgliesh, Falconer, and Co.	2	2	0
James Lumsden, Esq.	1	1	0
George Parker, Esq.	1	1	0
Richard Kidston, Esq.	1	1	0
Alexander Garden, Esq.	2	2	0
J. G. Watson, Esq.	1	1	0
Thomas Buchanan, Esq.	1	1	0
James Buchanan, Esq.	1	1	0
Allan Buchanan, Esq.	1	1	0
Robert Blackie, Esq.	1	1	0
J. A. Anderson, Esq.	1	1	0
Robert Stewart, Esq.	1	1	0
James Ellis, Esq.	1	1	0
William Hall, Esq. (Kilmarnock)	1	0	0
John Whitehead, Esq.	1	1	0
Mungo Campbell, Esq.	1	1	0
Peter Stewart, Esq.	1	1	0
Professor Mylne	2	2	0
William Wilson, Esq. (Ingram Street)	1	1	0

	£	s.	d.
T. S. Thomson, Esq.	1	1	0
Doctor M. S. Buchanan	1	1	0
James Richardson, junior, Esq.	1	1	0
William Bennet, Esq. (Virginia Street)	1	1	0
George Warden, Esq.	1	1	0
William Mathieson, Esq.	1	1	0
Michael Rowand, Esq.	2	2	0
Thomas Dunlop Douglas, Esq.	1	1	0
George Scheviz, Esq.	1	1	0
John Smith, youngest, Esq.	1	1	0
Henry Paul, Esq.	2	2	0
Robert Hastie Lesmahagow	1	1	0
William Jamieson, Esq.	1	1	0
Mungo Campbell, junior, Esq.	1	1	0
John Jamieson, junior, Esq.	1	1	0
Matthew Alexander, Esq.	1	1	0
Alexander Graham, Esq.	1	1	0
William Middleton, Esq.	1	1	0
Alexander Wilson, Esq.	1	1	0
Professor Scoullar	1	0	0
Lord John Campbell	1	1	0
Doctor James Jaffray	2	2	0
Reverend P. Macmaster Gervan	2	0	0
Adam Wilson, Esq.	1	1	0
William Murray, Esq.	1	1	0
Andrew Johnston, Esq.	1	1	0
Alexander Morrison, Esq.	1	1	0
Doctor Phillip Whiteside, Ayr	1	1	0
£	193	8	0

Second Subscription.

Colin Dunlop, Esq.	5	5	0
Charles M^cIntosh, Esq.	2	2	0
George M^cIntosh, Esq.	1	1	0

Third Subscription.

Doctor A. J. Hannay	1	0	0
J. Hannay, Esq.	1	0	0
£	203	16	0
Expenses of meeting, advertisements, &c.	11	11	6
£	192	4	6

GREENOCK. *Transmitted by George Oughterson, Esq.*

	£	s.	d.
James Oughterson, Esq.	5	5	0
Quinton and James Leitch, Esqrs.	5	5	0
Robert Steel, Esq.	5	5	0
William Macfie, Esq.	5	5	0
James Stuart, Esq.	5	5	0
Robert Angus	5	5	0
Messrs. John Scott and Sons	5	5	0
Andrew Ramsay, Esq.	5	5	0
Messrs. Hunter, Oughterson, and Co.	5	5	0
Messrs. James Hunter and Co.	5	5	0
Robert Ewing, Esq.	5	5	0
James Ritchie, Esq.	5	5	0
Adam M'Leish, Esq.	5	5	0
James Hunter, Esq.	5	5	0
James Watt, Esq.	2	2	0
Messrs. Robert and George Blair	5	5	0
William Simons, Esq.	2	2	0
John Gray, Esq.	2	2	0
Maitland Young, Esq.	2	2	0
Thomas Farrie, Esq.	2	2	0
Houston Stewart, Esq.	2	2	0
George Noble, Esq.	2	2	0
Ninian Hill, Esq.	2	2	0
James Miller, Esq.	3	3	0
Messrs. Alan Ker and Co.	5	5	0
Robert Wallace, Esq., M. P. for Greenock	5	5	0
The Reverend Thomas Brown (Innerkip)	1	1	0
Robert Jamieson, Esq. of Glasgow	5	5	0
Messrs. Bownlie, Buchanan, and Co.	5	5	0
Walter Bain, junior, Esq.	3	3	0
Mrs. Crooks (Leven)	3	3	0
Alexander Croal, Esq.	0	10	6
Thomas Nichol, Esq.	0	10	6
David Heron, Esq.	0	10	6
Roger Ayton, Esq.	1	1	0
John Campbell, Esq. (Kilblain)	1	1	0
	£130	14	6
Additional	4	12	6
	£135	7	0

N. B. — £4 12*s.* 6*d.* received above the amount of this List, but there is no means of accounting for it.

LIVERPOOL. *Transmitted by Lord Viscount Sandon, through Admiral Sir William Hotham, K.C.B.*

	£	s.	d.
The Mayor	5	0	0
Lord Viscount Sandon	5	0	0
James Aspinall. Esq.	1	0	0
Robertson Gladstone, Esq.	1	0	0
Sir Thomas Branker	1	0	0
T. B. Horsfall, Esq.	1	0	0
H. R. Sandbach, Esq.	1	0	0
John Moss, Esq.	1	0	0
Henry Moss, Esq.	1	0	0
William Latham, Esq.	1	0	0
Arnold Harrison, Esq.	1	0	0
Thomas Tobin, Esq.	1	0	0
Charles Laurence, Esq.	1	0	0
Francis Shand, Esq.	1	0	0
Henry Stevenson, Esq.	1	0	0
William Jurrie, Esq.	1	0	0
John Ewart, Esq.	1	0	0
William Hadfield, Esq.	1	0	0
R. McAndrew, Esq.	1	0	0
William K. Ewart, Esq.	1	0	0
Harmood Banner, Esq.	1	0	0
Elias Arnaud, Esq.	1	0	0
J. Sandars, Esq.	1	0	0
R. B.	0	5	0
A Friend, per J. C. Nicholson, Esq.	5	0	0
Mrs Jones	1	0	0
C. S. Parker, Esq.	1	1	0
Richard Rathbone, Esq.	1	0	0
Thomas Booth, Esq.	1	0	0
Alexander McGregor, Esq.	1	0	0
M. D. Loundes, Esq.	0	10	0
Thomas Wilson, Esq.	1	0	0
John Woolwright, Esq.	1	0	0
D. C. Buchanan, Esq.	0	10	0
H. Garston, Esq.	0	10	0
R. A. Fletcher, Esq.	1	0	0
R. Aleson, Esq.	1	0	0
Richard Dobson, Esq.	1	0	0
H. Hargreaves, Esq.	1	0	0
S. Carson, Esq.	1	0	0
Thomas Langton, Esq.	1	0	0
G. McMinn, Esq.	1	0	0

	£	s.	d.
T. Fletcher, Esq.	1	0	0
John Machell, Esq.	1	0	0
Henry Ashton, Esq.	1	0	0
Edward Guffen, Esq.	1	0	0
Henry Wilson, Esq.	1	0	0
Mrs. James Dawson	1	1	0
Robert Horsfall, Esq.	1	0	0
William Myers, Esq.	1	0	0
William Comer, Esq.	1	0	0
John Taylor, Esq.	1	0	0
Robert Preston, Esq.	1	0	0
William Waler, Esq.	1	0	0
Hardinan Earle, Esq.	1	0	0
William Joseph Myers, Esq.	1	0	0
Francis Haywood, Esq.	1	0	0
James Cocksholt, Esq.	1	0	0
R. B. B. Hollinshead, Esq.	1	0	0
Henry Harrison, Esq.	1	0	0
George Holt, Esq.	1	0	0
Daniel Waterhouse, Esq.	1	0	0
Thomas Harrison, Esq.	1	0	0
James M'Gregor, Esq.	1	0	0
Arnold Littledale, Esq.	1	0	0
Stewart Gladstone, Esq.	1	0	0
Joseph Hornby, Esq.	1	0	0
Isaac Cooke, Esq.	1	0	0
Henry Robson, Esq.	0	10	0
Thomas Brocklebank, Esq.	1	0	0
J. B. Yates, Esq.	1	0	0
William Potter, Esq.	1	0	0
John Hall, Esq.	1	0	0
Joseph Langton, Esq.	1	0	0
James Gilfillim, Esq.	1	0	0
James Hayworth, Esq.	1	0	0
Ormerod Hayworth, Esq.	1	0	0
William Rotheram, Esq.	1	0	0
George Grant, Esq.	1	0	0
William Brown, Esq.	1	0	0
Laurence Heyworth, Esq.	1	0	0
G. Brown Everton, Esq.	1	0	0
Samuel Bright, Esq.	1	0	0
John Cropper Everton, Esq.	1	0	0
W. Jemmett Brown, Esq.	1	0	0
W. F. Porter, Esq.	1	0	0
Duncan Gibb, Esq.	1	0	0

	£	s.	d.
Richard Harrison, Esq.	1	0	0
William Nicol, Esq.	1	0	0
William Laird, Esq.	1	0	0
Thomas Leathom, Esq.	1	0	0
Nicholas Roskell, Esq.	1	0	0
William Dixon, Esq.	1	0	0
Thomas Bolton, Esq.	1	0	0
John Redgway, Esq.	1	0	0
William Jones, Esq.	1	0	0
William M°Cracken, Esq.	1	0	0
Henry Holmes, Esq.	1	0	0
John Holmes, Esq.	1	0	0
Samuel Hope, Esq.	1	0	0
Moses Edwards, Esq.	1	0	0
William Smith, Esq.	1	0	0
	111	7	0
Less expenses	1	13	0
	£109	14	0

(Signed) James Aspinall, *Treasurer.*

MASHAM. *By William Spence, Esq.*

	£	s.	d.
William Danby, Esq.	2	0	0
Timothy Hutton, Esq.	1	0	0
Samuel Wrather, Esq.	1	0	0
Captain Wrather	1	0	0
Miss Wrather	2	0	0
Miss E. Spence	1	0	0
	£8	0	0

NEWBURY. *Transmitted by F. Page and J. E. Winterbottom, Esqrs.*

	£	s.	d.
Charles Eyre, Esq. (Weford House)	1	0	0
C. J.	0	2	6
S. H.	0	2	6
John Pearse, Esq. (Chilton Lodge)	1	1	0
Frederick Page, Esq. (Goldwell)	3	0	0
J. E. Winterbottom, Esq. (Woodhay)	3	0	0
Collected	0	15	0
P. Duncan, Esq. (New College, Oxford)	1	0	0
John Duncan, Esq. (Bath)	1	0	0
Charles Slocock, Esq. (Donington)	1	0	0
Henry Tull, junior, Esq. (Crookham)	1	0	0

	£	s.	d.
Richard Tull, Esq. (Ditto)	1	0	0
Lieutenant Le Mesurier, R. N.	0	10	0
Alfred Slocock, Esq. (Newbury)	1	0	0
—— Chatteris, Esq. (Newtown)	1	0	0
J. B.	0	10	0
Collected	0	15	0
Miss Brinton	1	0	0
R. Compton, Esq.	1	0	0
Collected by Ladies	1	16	0
John Frederick Winterbottom, Esq.	1	0	0
Richard Townsend Winterbottom, Esq.	1	0	0
Mrs. Winterbottom	1	0	0
Miss Winterbottom	1	1	0
Mrs. Page	2	0	0
	£27	13	0

PORTSMOUTH. *Transmitted by James Pinhorn, Esq., Secretary to the late Admiral Sir Thomas Foley, G.C.B.*

Colonel Sir Richard Williams, K. C. B.	2	0	0
Major-General Sir Henry Worseley, K. C. B., H. E. I. C. S.	5	0	0
S. Goodrich, Esq.	1	0	0
Captain William Turner, R. N.	1	0	0
Captain Askew, R. N.	1	0	0
Rear-Admiral Sir T. L. Maitland	5	0	0
Edward Casher, Esq.	1	0	0
H. Deacon, Esq.	1	0	0
Lieutenant Godench, R. N.	0	12	0
Lord Colchester	5	0	0
Captain Robert Tait, H. M. S. Spartiate	1	0	0
The Countess of Northesk	1	0	0
	£24	12	0

PLYMOUTH. *Transmitted by James White, Esq.*

In Single Shilling Subscriptions	14	14	0
In Shillings and Sixpences, in a Box placed at Commercial Rooms, Plymouth, and afterwards at Devonport	0	15	6
Miss Darracott	0	10	0
Captain Frazer, Revenue Service	0	5	0

	£	s.	d.
Lieutenant Sanhey, R. N.	0	2	6
Mr. May, Savings' Bank	0	2	6
Miss Ann Arthur	0	2	6
	£ 16	12	0
Less postage	0	2	0
	£ 16	10	0

STRANRAER. *Transmitted through Messrs. Robert Allen and Son, Bankers, Edinburgh.*

Sir James Hay, of Park Place, Baronet	10	10	0
Andrew McDowall of Logan, Esq.	10	10	0
John Cathcart of Genoch, Esq.	5	5	0
Forbes H. Blair of Dunskey, Esq.	5	5	0
Edward Stewart, M. P.	2	2	0
The Reverend P. Ferguson (Inch)	3	3	0
Lieutenant-Colonel R. McDowall (Stranraer)	2	2	0
Doctor Ritchie (Challoch)	1	1	0
Captain Hutchison, R. N.	1	1	0
The Reverend David Wilson (Stranraer)	1	1	0
The Reverend William Kergoe (Newluse)	1	1	0
The Reverend William Rose (Kirkcolm)	1	1	0
Mr. Charles Morland (Stranraer)	1	1	0
Mr. Alexander McNeel (Ditto)	1	1	0
Mr. John Douglas (Ditto)	1	1	0
Mr. Robert Wilson (Ditto)	1	1	0
Mr. Alexander McDowall (Ditto)	1	1	0
Mr. William McKinnel (Ditto)	1	1	0
Mr. John Paterson (Ditto)	1	1	0
Mr. John Agnew (Ditto)	1	1	0
Mr. Simon Gartley (Ditto)	0	10	0
Mr. William Main (Ditto)	0	10	0
Mr. Andrew Irvine (Ditto)	0	5	0
	£ 53	15	0

THE END.

London:
Printed by A. Spottiswoode,
New-Street-Square.

MAP OF THE

DISCOVERIES AND ROUTE

of the

ARCTIC LAND EXPEDITION,

in the Years 1833 & 1834

Surveyed and Drawn

by

Captain Back R.N.

English Miles

References

- denotes where an Observation of Lat. was taken
- 2d Lat. Long. 1 1st Latitude 3 1st Alt.
- Direction of the Drawn

E S Q U I M A U X

W I L L I A M

L A N D

B A R R E N L A N D S

Thlewiedhazdeeth

Thlewiedhazdeeth R.

Fort Reliance

Fort Enterprize

Fort Providence

Fort Resolution

Fort Chipewyan

Fort Wedderburn

Fort Norman

Fort Simpson

Fort Good Hope

Fort Liard

Fort Halkett

Fort Vermilion

Fort Dunvegan

Fort Chipewyan

Fort Wedderburn

Fort Norman

Fort Simpson

Fort Good Hope

Fort Liard

Fort Halkett

Fort Vermilion

Fort Dunvegan

Great Slave Lake

Great Bear Lake

Great Slave Lake

Great Bear Lake

Athabasca Lake

Athabasca R.

Slave R.

Mackenzie R.

Peace R.

Hudson's Bay

Baffin's Bay

North Georgian Is.

Melville Sd.

Barrow Str.

Lancaster Sd.

Prince Regent Inlet

Boothia Gulf

Fury & Hecla Str.

Repulse Bay

Southampton I.

Cape Chidley

Cape Farewell

Davis Str.

Hudson's Str.

Longitude West from Greenwich

London John Murray Albemarle Street W.